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A Profile of the  
**UNITED STATES  
PUBLIC HEALTH SERVICE**  
1798-1948  
By Bess Furman

in consultation with  
Ralph C. Williams, M.D., author of  
*The United States Public Health Service,*  
1798-1950

**U.S. Department of Health, Education, and Welfare**  
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# FIFTH CONGRESS OF THE UNITED STATES:

At the Second Session.

Began and held at the city of Philadelphia, in the state of PENNSYLVANIA, on Monday, the thirteenth of November, one thousand seven hundred and ninety-seven.

## An ACT for the relief of sick and disabled Seamen.

BE it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled,

and after the first day of September next, the master or owner of every ship or vessel of the United States, arriving from a foreign port, into any port of the United States, shall, before such ship or vessel shall be admitted to land, render to the collector a true account of the number of seamen that shall have been employed on board such vessel, since she was last entered at any port in the United States, and shall pay to the said collector, at the rate of twenty cents per month, for every seaman so employed, a certificate of having been employed, and of the cause of such seaman.

Sec. 2. And be it further enacted, That from and after the first day of September next, no vessel shall permit to any ship or vessel, unless such vessel is licensed or licensed for emergency on the sailing list, to receive on board or to leave, before the master of such ship or vessel shall first render a true account to the collector of the number of seamen, and the time they have actually been employed on board such ship or vessel, during the continuance of the license, which has expired, and pay to such collector, twenty cents per month for every month such seamen have been so employed, or if expired, which since the said license is hereby renewed, to return out of the wages of such seamen, and if any such master shall render a false account of the number of seamen, and the length of time they have actually been employed, as is herein required, he shall forfeit and pay one hundred dollars.

Sec. 3. And be it further enacted, That it shall be the duty of the several collectors to make a quarterly return of the sums collected by them, respectively, by virtue of this act, to the Secretary of the Treasury, and the President of the United States, hereby authorized, out of the sums, to provide for the temporary relief and maintenance of sick or disabled seamen, in the hospitals, or other proper institutions now established in the several ports of the United States, or in ports where no such institutions exist, then in such other manner as he shall direct; Provided, that the sums collected in any one district, shall be expended within the same.

Sec. 4. And be it further enacted, That if any collector shall receive of the master of a vessel, by virtue of this act, after defraying the expenses of such temporary relief and support, that the sums, together with such private donations as may be made for that purpose, (which the President is hereby authorized to receive) shall be expended in the discharge of the President's will, in his opinion, a sufficient fund shall be recommended, he is hereby authorized to purchase or receive refuges or donations of ground, or buildings, in the name of the United States, and to cause buildings, refuges, or to receive as hospitals for the accommodation of sick and disabled seamen.

Sec. 5. And be it further enacted, That the President of the United States be, and he is hereby authorized, to nominate and appoint, in each port of the United States, one or more persons, to be called directors of the same hospital of the United States, whose duty it shall be to direct the expenditure of the funds assigned for these refuges, ports, according to the third section of this act, to provide for the accommodation of sick and disabled seamen, under such general instructions as shall be given by the President of the United States; for that purpose, and who, subject to the like general instructions, he direct and govern such hospitals as he shall think proper, and that the said directors shall hold their office during the pleasure of the President, who is hereby authorized to fill up all vacancies that may be occasioned by the death or removal of any of the persons so to be appointed. And the said directors shall render an account of the monies received and expended by them, once in every quarter of a year, to the Secretary of the Treasury, or such other person as the President shall direct; but no other allowance or compensation shall be made to the said directors, except the payment of such expenses as they may incur in the actual discharge of the duties required by this act.

Jonathan Dayton Speaker of the House of Representatives.  
Messrs. Bagwood, President of the Senate, pro tempore.

Approved July 16, 1798.

John Adams.

President of the United States.

Tested that the act is signed in  
the name of the President.  
Jonathan Bagwood, Sec.

Public Health Service photograph

The original of this Act of the Fifth Congress of the United States, which started the Public Health Service, is in the National Archives in Washington, D.C. Titled: "An Act for the relief of sick and disabled seamen." It was signed by President John Adams in Philadelphia, Pennsylvania, then the Nation's capital, on July 16, 1798.



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## FOREWORD

**Martin M. Cummings, M.D.**

**Director, National Library of Medicine**

Mrs. Bess Furman Armstrong died shortly after completing her manuscript describing the history of the U.S. Public Health Service. She was well known as a newspaper writer and author of several popular books describing life in Washington, and particularly within the White House (*White House Profiles* and *Washington By-line*), but she denied being a historian. Technically, she was correct, but I can assure the readers of this lively account that she used careful historical techniques in her research. Most of the original documents used in the preparation of this publication can be found in the National Library of Medicine, the Library of Congress, or the National Archives. "Lady Bess," as she was affectionately called by the staff at the National Library of Medicine, also drew heavily on personal interviews with leading figures of more recent Public Health Service history.

Observing Mrs. Armstrong's work almost daily for five years, I soon became aware of her complete dedication to the task of writing for the general public rather than solely for the specialist historian. Thus, scholarly style and format are deliberately replaced by simple, informal, and sometimes discursive writing. In my view, this makes the history charming and, at times, exciting.

In the course of her study, Mrs. Armstrong has unearthed a wealth of history not previously described by Dr. R. C. Williams in his splendid book, *The United States Public Health Service, 1798-1950*. Dr. Williams generously served as a consultant to Mrs. Armstrong and willingly shared material which he had developed. The Williams history is written particularly for the officers of the Public Health Service and is thus complemented by this more general account written for the public.

My role has been a simple one: I have attempted to edit the text without making any significant change in substance or style. Those interested in the evolution of public health in our nation will find American medical history, earthy politics, social developments, and biographical vignettes in this work which enrich our understanding of the past and its influence on the present state of national health affairs.

## AUTHOR'S PREFACE

For twenty-five years as a newspaper reporter in Washington, D.C., I wrote articles about the Public Health Service. Eight years of that time I wrote for the Associated Press. For seventeen years I wrote for the New York Times.

Because of my long writing experience in the public health field, Dr. Ralph C. Williams, who published his history of the Public Health Service in 1951, asked me ten years later to bring his book up to date. My reply was that I had always written as a newspaper reporter and could not attempt to write as a physician.

However, after talks with Surgeon General Luther L. Terry, it was agreed that I would write my own version of the history of the Public Health Service for the public, with Dr. Williams as my consultant.

I was glad to undertake this task as I felt I owed my life both to Dr. Williams and the Public Health Service under circumstances that whetted my curiosity. As Assistant Surgeon General of the Public Health Service in charge of all clinical work Dr. Williams, in the autumn of 1950, had referred me, as a melanoma cancer case, to Dr. John Emile Wirth, who then was doing cancer research at the Public Health Service hospital in Baltimore, Maryland. Dr. Wirth, who was both a surgeon and an expert in laboratory research, performed an operation for removal of the lymph nodes that indicated melanotic malignancy, which prolonged my life.

Nine years later I received a telephone call from the Baltimore hospital. I was told that the hospital had canvassed twenty years of melanoma operations, one or two each year, and had found only two survivors, me and a woman living in the Far Western part of the United States. I was asked to give blood to a seaman in the hospital. I was told that a scientist at Johns Hopkins University Hospital had succeeded in growing in tissue culture melanoma cells which had been taken from this seaman in the nearby Public Health Service Hospital.

For the seaman, I gave 500 cubic centimeters of blood on October 1, 1959. I also gave a smaller amount of blood to be used in the tissue culture laboratory at the Johns Hopkins Hospital.

A month later a letter was written to me by a physician in the Public Health Service Hospital in Baltimore which excited me greatly. Two paragraphs of it follow:

"We gave Mr. Scull your blood shortly after it was typed and matched. Your blood was entirely compatible with his and we administered the entire 500 cc's. Days passed; then, very slowly, his tumor began to regress. At the present time we estimate approximately 60 percent regression of the tumor. It has not metastasized as we suspected, and a recent chest X-ray was negative.

"Dr. Kodani inoculated the tissue culture with your serum and, surprisingly enough, every melanoma cell died within 36 hours. This is a highly significant finding; however, we plan additional tissue culture studies."

In less than a month, on November 25, 1959, the seaman died. Obviously my blood had performed no miracle for him. The experiment ended with no scientific findings. But it had been most interesting to me as a newspaper reporter. So I welcomed the opportunity to study and write the history of the Public Health Service.

A study room at the National Library of Medicine, one of the richest storehouses of medical source material anywhere, was made available to me. I was assigned a veritable jewel of a secretary, Miss Joan Edwards, who quickly developed into a competent assistant, Mrs. Joan Edwards Harris.

Overseeing and always in close touch with my work was J. Stewart Hunter, a superb editor, and longtime Assistant to the Surgeon General for Information. Under his direction, I visited the principal installations of the Service.

Dr. Ralph C. Williams has been an authoritative and conscientious consultant all the way through. He has furnished references on future predictions for public health as well as past history, to the benefit, I feel sure, of the general public.

The history of the Public Health Service for the newspaper-reading public which I envisaged has, of course, proven to be a task far too great for any one writer and for any one book. And, because it concerned public health, it proved to be inextricably interwoven with other Government agencies, the medical profession, voluntary agencies, and individuals. All had to be included.

This, then, is not a history but a Profile. I simply sliced across the years and through the Public Health Service, and here is what came out.

The uncut text, annotated as to its sources, may be consulted by any newspaper reporter or any scholar at either of two places: the National Library of Medicine, in Bethesda, Maryland; or the Manuscript Section of the Library of Congress, in Washington, D.C.

Bess Furman



## PRESIDENTS WITH THEIR TERMS

PRESIDENT	SERVICE
1. George Washington -----	Apr. 30, 1789-Mar. 3, 1797
2. John Adams -----	Mar. 4, 1797-Mar. 3, 1801
3. Thomas Jefferson -----	Mar. 4, 1801-Mar. 3, 1805
Do -----	Mar. 4, 1805-Mar. 3, 1809
4. James Madison -----	Mar. 4, 1809-Mar. 3, 1813
Do -----	Mar. 4, 1813-Mar. 3, 1817
5. James Monroe -----	Mar. 4, 1817-Mar. 3, 1825
6. John Quincy Adams -----	Mar. 4, 1825-Mar. 3, 1829
7. Andrew Jackson -----	Mar. 4, 1829-Mar. 3, 1833
Do -----	Mar. 4, 1833-Mar. 3, 1837
8. Martin Van Buren -----	Mar. 4, 1837-Mar. 3, 1841
9. William Henry Harrison <sup>1</sup> -----	Mar. 4, 1841-Apr. 4, 1841
10. John Tyler -----	Apr. 6, 1841-Mar. 3, 1845
11. James K. Polk -----	Mar. 4, 1845-Mar. 3, 1849
12. Zachary Taylor <sup>1</sup> -----	Mar. 5, 1849-July 9, 1850
13. Millard Fillmore -----	July 10, 1850-Mar. 3, 1853
14. Franklin Pierce -----	Mar. 4, 1853-Mar. 3, 1857
15. James Buchanan -----	Mar. 4, 1857-Mar. 3, 1861
16. Abraham Lincoln -----	Mar. 4, 1861-Mar. 3, 1865
Do <sup>1</sup> -----	Mar. 4, 1865-Apr. 15, 1865
17. Andrew Johnson -----	Apr. 15, 1865-Mar. 3, 1869
18. Ulysses S. Grant -----	Mar. 4, 1869-Mar. 3, 1873
Do -----	Mar. 4, 1873-Mar. 3, 1877
19. Rutherford B. Hayes -----	Mar. 4, 1877-Mar. 3, 1881
20. James A. Garfield <sup>1</sup> -----	Mar. 4, 1881-Sept. 19, 1881
21. Chester A. Arthur -----	Sept. 20, 1881-Mar. 3, 1885
22. Grover Cleveland <sup>2</sup> -----	Mar. 4, 1885-Mar. 3, 1889
23. Benjamin Harrison -----	Mar. 4, 1889-Mar. 3, 1893
24. Grover Cleveland <sup>2</sup> -----	Mar. 4, 1893-Mar. 3, 1897
25. William McKinley -----	Mar. 4, 1897-Mar. 3, 1901
Do <sup>1</sup> -----	Mar. 4, 1901-Sept. 14, 1901
26. Theodore Roosevelt -----	Sept. 14, 1901-Mar. 3, 1905
Do -----	Mar. 4, 1905-Mar. 3, 1909
27. William H. Taft -----	Mar. 4, 1909-Mar. 3, 1913
28. Woodrow Wilson -----	Mar. 4, 1913-Mar. 3, 1921
29. Warren G. Harding <sup>1</sup> -----	Mar. 4, 1921-Aug. 2, 1923
30. Calvin Coolidge -----	Aug. 3, 1923-Mar. 3, 1925
Do -----	Mar. 4, 1925-Mar. 3, 1929
31. Herbert C. Hoover -----	Mar. 4, 1929-Mar. 3, 1933
32. Franklin D. Roosevelt -----	Mar. 4, 1933-Jan. 20, 1941
Do -----	Jan. 20, 1941-Jan. 20, 1945
Do <sup>1</sup> -----	Jan. 20, 1945-Apr. 12, 1945
33. Harry S. Truman -----	Apr. 12, 1945-Jan. 20, 1949

<sup>1</sup> Died in office.

<sup>2</sup> Terms not consecutive.

NOTE: Grover Cleveland served two non-consecutive terms (which were officially designated the 22nd and 24th Presidential terms. Thus, William McKinley was the 24th *individual* to hold the office, but officially designated 25th President. The same is true for each succeeding President—his official designation is one number higher than his individual designation.)

## SURGEONS GENERAL OF THE PUBLIC HEALTH SERVICE

<i>Names</i>	<i>Date of birth</i>	<i>Dates of office</i>	<i>Date of death</i>
John Maynard Woodworth	Aug. 15, 1837	April 1871, to Mar. 14, 1879 <sup>1</sup> --	Mar. 14, 1879
John B. Hamilton -----	Dec. 1, 1847	Apr. 3, 1879, to May 31, 1891 <sup>2</sup> --	Dec. 24, 1898
Walter Wyman -----	Aug. 17, 1848	June 1, 1891, to Nov. 21, 1911 <sup>3</sup> --	Nov. 21, 1911
Rupert Blue -----	May 30, 1867	Jan. 13, 1912, to Mar. 1, 1920 <sup>4</sup> --	Apr. 12, 1948
Hugh Smith Cumming ---	Aug. 17, 1869	Mar. 3, 1920, to Jan. 31, 1936 <sup>5</sup> --	Dec. 20, 1948
Thomas Parran -----	Sept. 28, 1892	Apr. 6, 1936, to Apr. 5, 1948 -----	

<sup>1</sup> Served as Supervising Surgeon of the Marine Hospital Service until Mar. 3, 1875, when his title was changed to Supervising Surgeon General.

<sup>2</sup> Surgeon General, Marine Hospital Service.

<sup>3</sup> Surgeon General, Marine Hospital Service, and Surgeon General, Public Health and Marine Hospital Service (after July 1, 1902).

<sup>4</sup> Surgeon General, Public Health and Marine Hospital Service, and Surgeon General, Public Health Service (after Aug. 14, 1912).

<sup>5</sup> Surgeon General, Public Health Service.

## ADMINISTRATORS OF THE FEDERAL SECURITY AGENCY

<i>Name</i>	<i>Dates of office</i>
Paul V. McNutt -----	1939-45.
Watson B. Miller -----	1945-47.
Oscar R. Ewing -----	1947-53.

## DIRECTORS OF THE NATIONAL INSTITUTES OF HEALTH

<i>Name</i>	<i>Date of birth</i>	<i>Dates of office</i>	<i>Date of death</i>
Joseph J. Kinyoun --	Nov. 25, 1860	August 1887 to Apr. 30, 1899 <sup>1</sup> -----	Feb. 14, 1919
Milton J. Rosenau --	Jan. 1, 1869	May 1, 1899, to Sept. 30, 1909 <sup>1</sup> -----	Apr. 9, 1946
John F. Anderson ---	Mar. 14, 1873	Oct. 1, 1909, to Nov. 19, 1915 <sup>1</sup> -----	Sept. 29, 1958
George W. McCoy --	June 4, 1876	Nov. 20, 1915, to May 25, 1930; <sup>1</sup> ----- May 26, 1930 to Jan. 31, 1937 <sup>2</sup> --	Apr. 2, 1952
Lewis R. Thompson --	Aug. 6, 1883	Feb. 1, 1937, to Jan. 31, 1942 <sup>2</sup> -----	Nov. 12, 1954
Rolla E. Dyer -----	Nov. 4, 1886	Feb. 1, 1942, to June 15, 1948; <sup>2</sup> ----- June 16, 1948, to Sept. 30, 1950 <sup>3</sup> --	

<sup>1</sup> Director, Hygienic Laboratory.

<sup>2</sup> Director, National Institute of Health.

<sup>3</sup> Director, National Institutes of Health.

## ROCKY MOUNTAIN LABORATORY

Ralph R. Parker, M.D.

1921-1949

Director





## Chapter 1:

# JOHN ADAMS—FEDERAL HEALTH INSURANCE FOR SEAMEN EXPOSED TO EPIDEMICS 1790—1800

To John Adams, second President of the United States, rightfully goes the credit for starting what is now the Public Health Service of the United States. He did it by signing the Act For The Relief Of Sick And Disabled Seamen, making it law on July 16, 1798. This took place in Philadelphia, Pennsylvania, this Nation's Capital from 1790 to 1800.

John Adams was no mere stroke-of-a-pen starter of this Nation's first system to safeguard the public health—the Marine Hospital Service. As a twenty-year-old school teacher in Worcester, Massachusetts, he had roomed and boarded with Dr. Nahum Willard, who had the usual shelf of standard medical books depended upon by physicians of the time. John Adams read them all, and seriously considered a career as a doctor. However, he turned to law instead, and moved his boarding place to talk to, and learn from, a Worcester lawyer, James Putnam.

All through his legal career which led to diplomatic missions abroad and to the Presidency, he evidenced interest, not only in medical matters, but also in scientific studies centering on human and animal life.

The law John Adams signed in 1798 provided that, starting on the following September, the master of any United States ship arriving in a port of the United States should pay the Collector of Customs twenty cents per month for every merchant seaman who had been aboard since that ship had left the United States, "which sum he is hereby authorized to retain out of the wages of such seamen."

The original copy of this Act is preserved, with all the other early statutes, at the National Archives Building in Washington, D.C. It is not to be lightly looked at. The person who will not be satisfied with a microfilm or photostat is taken to the particular bound volume of large parchments of assorted sizes and shapes which includes this 1798 law. The volume is so heavy it requires a man's strength to take it from the steel shelves to a table. The buckram inner cover which protects it from the dusts of the years is folded back, and the old Act with its impressive signatures of the Speaker of the House, the President pro tempore of the Senate, and the President of the United States appears. The law is exquisitely handwritten. The parchment on which it is inscribed is twenty-six and three-fourth inches across and thirty and one-half inches long.

The money collected under the 1798 law at the various ports by the Collector of Customs, was to be turned over to the Secretary of the



*John Adams*

Courtesy of Independence National Historical Park, Philadelphia, Pa.

This portrait of President John Adams, as painted from life by Charles Willson Peale in Philadelphia, now hangs in restored Congress Hall, an important unit of the outstanding Independence Square Restoration project being conducted by the National Park Service.

Treasury for the care of sick seamen, including the building of hospitals. The next year this withholding was extended to every officer and sailor in the United States Navy.

The Act For The Relief Of Sick And Disabled Seamen thus was a payroll deduction plan for prepayment of medical care for a far-traveling, highly-susceptible group.

It was a sea-faring era. Merchants from Boston, New York, Philadelphia, Norfolk, Charleston, and Savannah sent their vessels to the ports of Europe, to the Middle East, and to the West Indies. The Pacific Ocean



Courtesy of Independence National Historical Park, Philadelphia, Pa.

Trained guides of the National Park Service show visitors through this building, Congress Hall, where the Fifth Congress voted the law, really a compulsory insurance system with hospitals for merchant seamen, which developed into the Public Health Service. The Senate is on the second floor of Congress Hall, the House of Representatives on the first.

was opening. Often sailors brought back, in addition to tales of adventure and foreign merchandise, various pestilences. Particularly dreaded were the two great scourges of the time, yellow fever and smallpox.

Prepayment through Government was not a new idea. Great Britain had long had a similar law, and indeed had collected such a tax from its colonies in this country. On their own initiative, some of the colonies also had laws under which they collected hospital care fees for and from sailors. The colony of Pennsylvania, which in the early 1700's deducted a sixpence per month from the payment of sailors, is credited by one

author with setting up "the first prepaid medical care program in America." Other colonies having such laws were Virginia, North Carolina, New York, and Delaware.

Massachusetts, home State of President Adams, was at the forefront of the fight in Congress for the Marine Hospital system. Senator Benjamin Goodhue, of Massachusetts, chairman of the Senate Committee which recommended passage of the Marine Hospital Act, had been a member of the House of Representatives from 1789 to 1797. He had then been chairman of a committee which had tried to get a similar measure enacted. The legislator credited with introducing the finally victorious bill and guiding it through the House was Representative Edward Livingston, of New York.

The Marine Hospital Service Act was the first National Legislative victory in the public health field although it had been nine years since Congress had convened its first session in March 1789. However, public



Courtesy of Independence National Historical Park, Philadelphia, Pa.

The Senate Chamber in Congress Hall, restored to the way it looked when John Adams was President and Vice-President Thomas Jefferson sat in the stately chair under the canopy.

The fine old buildings of that time which still survive in the vicinity of Independence Square are being restored inside as well as outside, including the Philadelphia home of Dolley Todd, later to become Dolley Madison.



health problems had been urged upon officialdom from the very beginning of the new Nation.

President George Washington, in an official trip through the Northern States, had visited Harvard University. Its President, Joseph Willard, strongly pressed Washington to set up a Federal hospital. Willard stressed "the great public utility of a hospital in the single subject of medical instruction, and particularly as it regards surgeons for the Army and Navy."

In January 1791, when John Adams was Vice-President, the Marine Society of Boston—to which he had been elected in 1769 when he was in his early thirties—had proposed to Congress the establishment of three Marine Hospitals along the eastern seaboard. This matter was referred for recommendation to the Secretary of the Treasury, Alexander Hamilton, of New York. Hamilton called it a measure "desirable on many accounts." He even included among the reasons he set forth that it would have a tendency "to protect from want and misery a very useful, and, for the most part, a very needy class of the Community."

Hamilton recommended a system similar to that of the British which would include services for the "widows and children of those who may have been killed or drowned in the course of their service as seamen."

To Hamilton also, had been referred an offer of the Virginia Legislature to sell the National Government the Marine Hospital at Washington Point, Virginia. He recommended in that same message its purchase—and when the Marine Hospital Act was finally passed the Washington Point hospital near Norfolk, Virginia, was bought by the Federal Government. The transfer deed was signed on April 20, 1801, by Governor James Monroe, a future United States President.

But the new National Government was confronted most poignantly by the problem of public health through the stark reality of awful epidemics. The classic of them all was the yellow fever epidemic of 1793 in Philadelphia, National capital, State capital, and port city. The plague of yellow fever was so terrible that National, State and City Governments simply dispersed and did not function. Newspapers, letters, and diaries of the day teemed with accounts of the horrors.

Whole fleets of ships, some of them with fever ridden crews and passengers, came into Philadelphia from the West Indies. They disgorged refugees from a great revolution in Santo Domingo in the sugar islands. The passengers in these ships had fled Dominica, Grenada, Hispaniola, Jamaica, Barbados, Antigua, and all the Leewards. They started coming early in July. By the end of August, their number exceeded two thousand. Mosquitoes, of course, were abundantly present at the waterfront. A newspaper item on how to kill them by pouring oil on the breeding water was termed by John Harvey Powell in his well documented study, *Bring Out Your Dead*, published in 1949, "one of the most remarkable paragraphs of the plague year." Yellow fever invaded



*Th Jefferson*

Courtesy of Independence National Historical Park, Philadelphia, Pa.

Thomas Jefferson, Vice-President of the United States in 1798, as painted from life by Charles Willson Peale. This portrait is on display in Congress Hall.

Philadelphia, population only about fifty-five thousand, through August, September, October, and November—even into December. For many weeks it paralyzed the place.

The City Government was first to fall apart as more and more people succumbed to the fever or fled from it.

"Councilmen left, and aldermen, judges and magistrates, clerks, brokers, chimney-sweeps and carters," Powell wrote. "Constables fled, and nurses, drivers and notaries, printers, scribes and bankers. The twenty-three night watchmen supposed to be on duty every night dwindled to a handful."

Only the indomitable mayor, Matthew Clarkson, stuck it out.

"Time and again," Powell noted, "there was no one to carry his messages, to execute his orders, even to consult and advise with him."

The almshouse was closed to new admissions. So was the Pennsylvania Hospital. Pauper patients were dumped in an area which in brighter days had been an equestrian circus, attended by President Washington. Conditions there became so revolting that the city simply seized a fine old estate, Bush Hill, and turned it into a pest house. It had an absentee landlord—a Tory who had gone back to England to live. When the National Capital first moved to Philadelphia it had been leased to Vice-President and Mrs. John Adams, who had lived happily in it. It stood on the site now occupied by the United States Mint in Philadelphia.

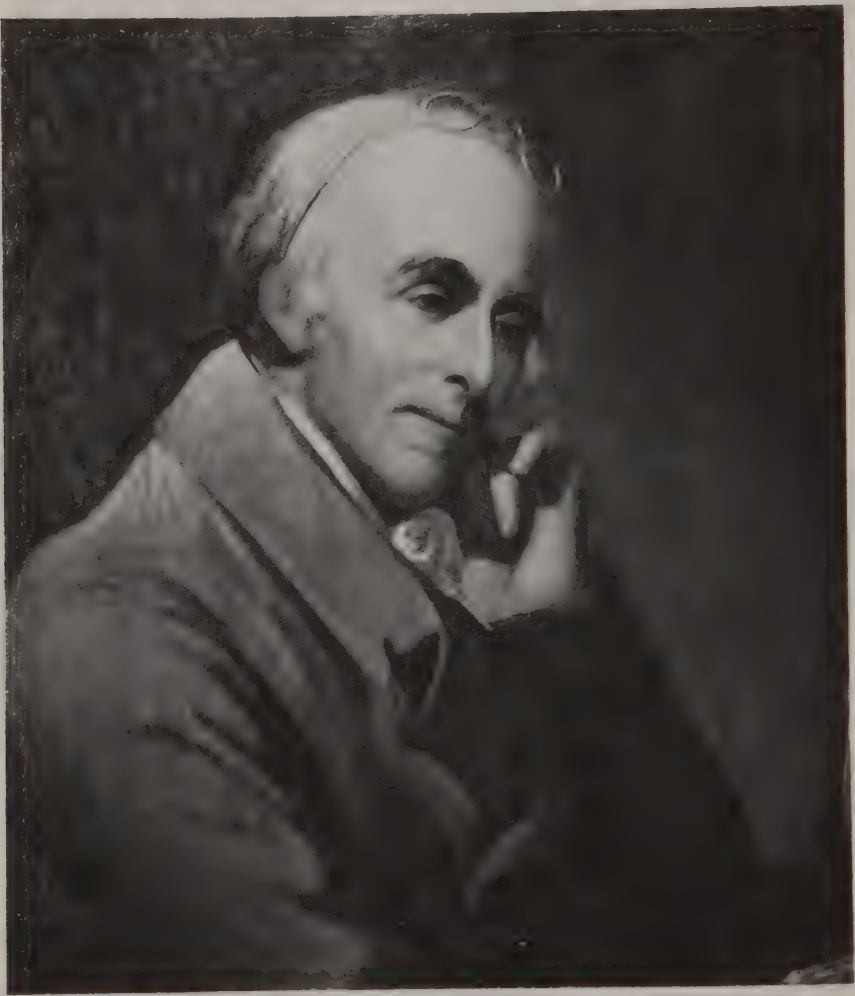
Governor Thomas Mifflin met the yellow fever emergency by hastening the closing of the Pennsylvania Legislature. It rushed through a swiftly-resurrected quarantine act, and then adjourned to scatter. Soon the Governor himself left for the Falls of Schuylkill, a favorite resort for fleeing Philadelphians. Thomas Jefferson, Secretary of State who was resigning because of differences of opinion with Alexander Hamilton, Secretary of the Treasury, was there. Regularly Jefferson wrote to James Madison reports of the swift spread of the Philadelphia epidemic.

President George Washington left for Mount Vernon September tenth as he had announced he would. With him went Mrs. Washington. They stopped at Schuylkill Falls to visit with Jefferson who told them he too was going home. Vice-President John Adams and Mrs. Adams already were at their home in Braintree, Massachusetts.

Washington's trip ostensibly was routine. It was his custom to go home early in the fall and return just before the Congress opened early in December. However, he later admitted that while he had wanted to stay longer in Philadelphia, he could not think of hazarding Mrs. Washington and the children by remaining in the fever-stricken city.

His departure seemed to be the signal for all the rest of the National Government to flee. Alexander Hamilton and his wife, who had caught the fever, were now recovered, and went to New York City. There they were refused admission and had to go on to Albany. The Treasury Department closed down. Public papers of all the rest of the Government were locked in closed houses as officials and clerks left town. There was no one in Philadelphia to advise President Washington in Mount Vernon on the state of the Nation. All the word he received was that the fever still raged.

Dolley (correct spelling) Payne Todd's young lawyer husband sent her to Gray's Ferry. He stayed in the city because Philadelphia needed lawyers. He felt a premonition, and rode down to Gray's Ferry barely



*Benjamin Rush*

Courtesy of Independence National Historical Park, Philadelphia, Pa.

This portrait of Dr. Benjamin Rush, hero of the 1793 yellow fever epidemic in Philadelphia, painted by Charles Willson Peale, hangs in Congress Hall. Peale once had his gallery in nearby Independence Hall, and many of his portraits have been returned to Independence Square.



in time to die in the arms of his wife. Then Dolley had the fever and her very young baby died of it. Had there been no 1793 epidemic of yellow fever, Dolley probably would have spent her life as the wife of a Philadelphia lawyer. As a young widow she married James Madison and went on to social leadership and political maneuvers in the White House.

Powell attributed the survival of Philadelphia in 1793 to the leadership of three men—the always-crusading Dr. Benjamin Rush, steadfast Mayor Matthew Clarkson, and Stephen Girard, waterfront merchant who went up to the chaotic Bush Hill pest house and organized it into an efficiently-running hospital.

“These were the leaders who would refuse to fear fear,” Powell said. “These were the men whose examples would bring the city out of its fantastic defeat.”

In any history of public health, Dr. Benjamin Rush, most famous physician of his time, is easily the most important of the three. Dr. Rush was a signer of the Declaration of Independence, and a close friend of both John Adams and Thomas Jefferson. He was an author, a leader in thought among the physicians of his time. His official post in Philadelphia at the time the 1793 epidemic broke out was Professor of the Institutes and Practice of Medicine and of Clinical Practice in the University of Pennsylvania, which established this country's first medical school. He championed the care of mental diseases as well as of physical ailments. He set up a program for humanitarian care of the insane in Pennsylvania Hospital, first medical hospital which had Benjamin Franklin as one of its founders.

But in the light of modern knowledge, the conclusions he arrived at for the cure of yellow fever were wrong. His methods of prodigious purges and copious blood-letting came to him from a medical book to which he turned at a time of deepest despair on the havoc of the yellow fever. The book said that in yellow fever the abdominal viscera were filled with blood and must be cleaned out by immediate evacuation. When the pulse was low, this text warned, it was fatal for the physician to hold an ill-timed scrupulousness on the weakness of the body. That was precisely the time for the physician to take charge and command nature. To Rush this was a sudden flash of utter inspiration. He forced down a dying man's throat a tremendous purge—and the man at once showed signs of recovery. From that time on, Dr. Rush fought death by massive purges and greatly increased blood-letting, the cure-all of that day. Many died who might have died anyway. But patients by the score somehow survived, buoyed up by the almost-evangelistic confidence of Dr. Rush.

“To tell you of all the people who have been bled and purged out of the grave in our city would require a book nearly as large as the Philadelphia directory,” Dr. Rush wrote.

Matthew Carey compiled a history of the dead which counted and

named 4,044. And it missed many. It did not include, for one, the baby of Dolley Todd.

George Washington wanted to convene Congress in some other city. He was told it would not be legal. He was finally convinced that Philadelphia was safe for Congress. Later he got a law passed permitting changing the seat of Government in a pestilence.

The yellow fever, in lesser epidemics, returned to Philadelphia in 1794, 1796, 1797, and 1798.

In April 1796, with yellow fever epidemics fresh in all minds, a bill was introduced in Congress to give President George Washington authority to set up a National quarantine system. Its first section read:

"That the President of the United States be, and is hereby, authorized to direct at what place or station in the vicinity of the respective ports of entry within the United States, and for what duration and particular periods of time, vessels arriving from foreign ports and places may be directed to perform quarantine."

Several States—South Carolina, Pennsylvania, Rhode Island, New Hampshire, Georgia and New York among them—already had quarantine laws.

When the new bill for a National quarantine system was debated in the House of Representatives on May 11 and 12, 1796, the entire conflict was on States rights, with only little of the epidemics.

Representative Daniel Hiester, of Pennsylvania, objected to the principle of the first section. It proposed to take the power from individual States to regulate what respected the health of their citizens, he said, and to place it in the President of the United States. And if the power was to be transferred from the President to the Collector of each port, as he conceived must be the case, it would put "a vast deal too much power in their hands."

Representative Samuel Smith, of Maryland, replied that the performing of quarantine was in the direction of the General Government. It was a commercial regulation.

Representative John Wilkes Kittera, of Pennsylvania, argued that each State understood its own concerns better than the General Government and had a right to legislate on this subject for itself.

Representative Smith pointed out there was no authority in the State Government to command the officer of a fort to use force to prevent a vessel from entering a port. The authority over him was in the General Government.

Representative John Milledge, of Georgia, said Savannah was one thousand miles from the seat of Government, that vessels constantly were coming in from the West Indies with diseases, and if they were to wait for the President to act, the greatest ravages might in the meantime take place with pestilential diseases.

Some representatives backed Representative Smith. Many more backed Representative Hiester, evidently the leader of the opposition. He rose again to say the section at issue would be taking the power of regulating quarantine from the State Government and placing it in the hands of the Collectors at different ports. He expressed the belief that the Collectors "were interested in proportion to the quantity of goods imported." Thus, he went on, "the health of our citizens and the interest of the Collectors would be placed in opposition to each other." Representative Hiester closed by saying he hoped the section giving the quarantine powers to the President would be struck out.

It was, by a vote of 46 to 23. When the first National Quarantine Act was passed on May 27, 1796, Federal quarantine activities were firmly limited to any cooperation asked for by the States in enforcing their laws.

President John Adams started both his first and his second messages personally delivered annually to joint sessions of Congress with a mention of the yellow fever which continued to imperil Philadelphia.

On November 22, 1797, he began:

"I was for some time apprehensive that it would be necessary, on account of the contagious sickness which affected the city of Philadelphia, to convene the National Legislature at some other place."

He said he had delayed his decision because of the inconvenience it would cause members and the economic loss it would be to Philadelphia.

Happily, he added, the fever declined and it was possible to meet in Philadelphia as usual. However, he suggested that power to postpone a meeting of Congress might well be added to the law Washington got in 1794 permitting it to meet in some other place than Philadelphia.

As he opened his second annual address on December 8, 1798, almost six months after signing the Marine Hospital Service Act, President Adams made an outright appeal for a National quarantine system. He said:

"While with reverence and resignation we contemplate the dispensations of Divine Providence in the alarming and destructive pestilence with which several of our cities and towns have been visited, there is cause for gratitude and mutual congratulations that the malady has disappeared and we are again permitted to assemble in safety at the seat of Government for the discharge of our important duties.

"But when we reflect that this fatal disorder has within a few years made repeated ravages in some of our principal seaports, and with increased malignity, and when we consider the magnitude of the evils arising from the interruption of public and private business, whereby the National interests are deeply affected, I think it is my duty to invite the legislature of the Union to examine the expediency of establishing suitable regulations in aid of the health laws of the



respective states, for these being formed on the idea that contagious sickness may be communicated through the channels of commerce, there seems to be a necessity that Congress, who alone can regulate trade, should frame a system which, while it may tend to preserve the general health, may be compatible with the interest of commerce and the safety of the Union."

Both Senate and House promptly made polite but ambiguous replies to the President on this part of his message.

A new quarantine bill was enacted and the old one repealed. The complete text of the new Quarantine Act, signed by Jonathan Dayton, Speaker, Thomas Jefferson, Vice-President, and approved by John Adams, President, on February 25, 1799, was published in the first American medical journal, *The Medical Repository* which had started in July, 1797, in New York City.

The text of this act shows that the two Houses did not consider it "a wise expedient" to make any genuine addition to the quarantine powers of the Federal Government. It simply put into stronger language than the old law did, that all Federal personnel at sea ports were "required faithfully to aid in the execution" of the State and city health laws.

The President of the United States, however, was empowered to order the purchase of warehouses where goods seized under quarantine could be kept under guard by the Collector of Customs until no longer dangerous. Had an effective national quarantine system been set up, it would have been enforced by the Collector of Customs.

During an epidemic the President was authorized to remove all public offices from an infested city, the Chief Justice was empowered to adjourn the Supreme Court, and Federal judges were permitted to remove prisoners "to the next adjacent prison where such disease does not prevail."

*The Medical Repository* was fated to be the forerunner of two hundred and forty-nine private medical journals which burgeoned in the principal American cities between 1800 and 1850, informing the public on progress in the health field and giving physicians a chance to tell of their researches and observations. They also reported on the principal advances in European medicine.

Three editors launched the *Medical Repository*, the only publication of its kind in the United States prior to 1800. Their combined effort was so scholarly, so far-seeing, and so broad in scope as to command attention still.

Dr. Samuel Latham Mitchill, aged thirty-three, was a brainy medical theorist who was said to have "distinctly disliked medical practice." He was professor of chemistry, botany, agriculture, and natural history at Columbia College, New York. He was also a member of the New York State Legislature and a civic leader in health matters. His studies of fishes caused him to be titled "Father of American Ichthyology." He



made investigations of the American aborigines. He looked into the condition of the deaf and dumb in the United States.

Dr. Edward Miller, aged thirty-seven, was described as "an earnest practitioner of medicine with a great interest in fevers," particularly in yellow fever. He also was a professor at Columbia College, holding the chair of Practice of Physic.

Dr. Elihu Hubbard Smith, aged twenty-six, was the precocious youth who originally conceived the idea of the *Medical Repository*. He enlisted Dr. Miller and together they enlisted Dr. Mitchill. Smith's name went on the title page as "One of the Physicians of the New York Hospital." He was a graduate from Yale at age fifteen, a practicing physician at age nineteen. He wrote poems and a three-act opera as well as essays on yellow fever, the disease of which he died at age twenty-seven, after serving only one year as editor.

This trio knew what they were after, and they told it brilliantly at the beginning of their first edition.

They praised the fact-finding method as the only basis for the practice of medicine and said that the United States was the best country on earth to amass a meaningful collection of medical facts.

"Besides those advantages which we possess in common with other nations," they said, "there are numerous others of new and peculiar importance."

Among the many advantages they named for America were: the extensive territory with its great variety of soil and climate; the varied descent of the population with its intermixture of customs, manners, and the consequent diseases of the inhabitants; the presence of savage, civilized, and intermediate states of society; the possibilities of comparisons of diseases in Europe and America; "and finally in the sameness and perfection of the language—an advantage possessed in the same degree by no other people."

The three editors then made their remarkable proposal to all physicians in the United States and to such literary laymen who might be interested. What they asked for showed their recognition that the diseases of man were closely linked with veterinary medicine and with the spread of disease by insects. The text follows:

"We request you to furnish us, either quarterly, semi-annually, or annually, as may best suit with your convenience, with such information, relative to all or either of the following particulars, as may be in your power.

1. Histories of such diseases as reign in your particular places of residence, at each and every season of the year; including the time of their appearance and disappearance; the peculiar customs and manners, and food of the people; local peculiarities, (not merely those of the town or village, but of the immediate residence of the sick), preceding, cotemporary, and subsequent

complaints; symptoms, progress, extent, method of cure, mortality, and what proportion of either sex, and of different ages, are affected;—in sea-ports, attention to be paid to supposed sources of importation, and to the arrival of foreigners; in new settlements, to changes in the face of the country, by clearings, drainings &c. and to the increase of population, by immigration and otherwise.

2. Histories of such diseases as appear among *Domestic Animals*—such as horses, cattle, sheep, &c—their causes, symptoms, method of cure, &c &c.
3. Accounts of *Insects*—whether any uncommon dearth or numbers of them; whether troublesome or noxious to men, beasts, or vegetables; with as accurate and minute notices as may be of their derivation, mode of propagation, nature and extent of such ravages, or other evils, as they may occasion; of their appearance and disappearance, and of the means, if any, of guarding against or destroying them.
4. Histories of the progress and condition of *Vegetation*—with regard to growth, vigour, and disease; independent of the ravages of insects; but marking the influence of manures, and the local situation, both as to elevation and soil, air and water.
5. The state of the *Atmosphere*—in respect to dryness and humidity, heat and cold, serenity and tempestuousness; including the direction and force of winds, and the sensible quantity of electricity.”

By this method of fact-assembling, the three editors said:

“The volume every year will form the history of the health of the United States for the year preceding; a single glance of the eye will be equal to perceive what diseases prevailed at the same time, in all the intermingled situations, from St. Mary’s to St. Croix and from the Mississippi to the Atlantic; and individual experience as well as new discoveries will be propagated with unexampled benefit and celerity to every part of the United States.”

*The Medical Repository* was a success from the start. It was purely a matter of private enterprise. Yet it had in it most of the elements of the great Public Health Service of today. Involved was cooperation between a college teaching medicine, a hospital furnishing clinical material, research projects of many kinds, practicing physicians, and interested laymen.

In the 1799 volume Dr. Mitchill appeared as the leading New York lobbyist for the quarantine law which President Adams wanted. He was the first signer of a petition sent to House and Senate which set forth these charges:

That foulness proceeding from crews and passengers of ships coming into New York, as well as from the merchandise aboard, “turns to

pestilence and destroys the lives of many of the youngest and stoutest seamen in the marine service.”

That “from the repeated and long continued application of the impurities produced and confined on ship-board the timber of their vessels becomes impregnated with the mischievous matter insinuating itself into the pores of all the wooden work beneath the decks, and issuing forth occasionally in poisonous streams.”

That such ships enter the port of New York, haul in beside the wharves, and appear to have destroyed the lives of citizens who go aboard them or are exposed to “rotting substances taken from their holds and carted through and stored within the city.”

The State Legislature, Mitchill and his fellow petitioners said, had been unable to prevent this situation for lack of a quarantine station “where sick persons might be taken out, foul cargoes landed under the inspection of a revenue-officer, and the vessels cleansed by the agents of the Health-office.”

The petition then stated: “The regulation of commerce belonging exclusively to the National Legislature, this great and terrible evil of filth and sickness thus introduced cannot be sufficiently guarded against unless the authority of the General Government should cause a piece of land to be purchased, and a wharf and other stores to be erected thereon, somewhere between the City of New York and the Narrows, to be under the direction of the Collector of the Port.”

Like President Adams, Dr. Mitchill did not get from Congress all he asked. But he added enough stature to his already-promising public career to get elected to Congress in 1800. There he served, mostly as a Representative, but for four years and four months as a Senator, until 1813. He continued as editor-in-chief of *The Medical Repository* all that time, and more.

As an indication of its continuing timeliness in the field of medicine, it might be mentioned that the same 1799 issue which published in full the new quarantine law, carried in the Table of Contents the caption, “Jenner on the Cow-pox,” describing a British discovery of only a few months before.

Smallpox was deeply dreaded by the people of the United States, as well as of Europe, in the late 1700’s. Some people said smallpox was even worse than yellow fever, as yellow fever came and went, but smallpox was always ready to pounce. George Washington’s face was only one of many thousands deeply pitted by smallpox. Many authors have reported that at this period smallpox was the greatest cause of infant mortality and caused one tenth of all the deaths among mankind.

Both Martha Washington and Abigail Adams were among the many who achieved immunity to smallpox by deliberately having a light case through inoculation with the disease by a physician. The practice of inoculation, or variolation, was popularized in England by Lady Mary



Wortley Montague in the spring of 1721, when a severe epidemic broke out in England. She had learned of it in 1718 at Constantinople where her husband was British Ambassador. The custom started independently in America as early as in England. Mrs. Adams took her four children to the home of an aunt in Boston, and was inoculated while her husband was at the Continental Congress in Philadelphia. Martha Washington was traveling from Cambridge, Massachusetts, to Mount Vernon, Virginia. She stopped in New York to be scratched, and went on to Philadelphia to spend the isolation period.

Several cases had broken out in the camp at Cambridge, Massachusetts. Mrs. Washington knew her husband would make her stay at home instead of following him to various camps unless she became immune. John Hancock had written General Washington, "Mrs. Hancock would esteem it to have Mrs. Washington take the smallpox in her house." But Martha decided to take it in New York and recuperate at a Philadelphia inn. When Thomas Jefferson's wife died in 1782 he took his three children to the home of a friend to have them inoculated for smallpox.

However, inoculations spread the smallpox. There was no real hope for surcease from it until the publication in London, in June of 1798—one month before President Adams signed the Marine Hospital bill—of Dr. Edward Jenner's discovery of cowpox vaccination. The Jenner discovery was as much a start of the present-day Public Health Service as its own initial organic act, so closely contemporaneous with it.

Jenner's small book, ten inches by seven and one-half inches, only sixty-four pages in large type with wide margins, had a very long title. It was: *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of The Cow Pox*. Even Dr. Jenner, a country physician of Berkeley, Gloucestershire, found this title too bulky. He just left it lying on the title page, with a little Latin quotation and instructions on where to buy the book. He headed his actual discussion merely, *An Inquiry &c, &c*. His style of writing was fresh and informative. He included four illustrations. He gave real names in the many case histories he cited.

Its message was that inoculation with cowpox, a comparatively mild disease which he described fully, would protect human beings against smallpox. Dr. Jenner as a young man, just happened to hear a milkmaid say that anyone who had cowpox wouldn't catch smallpox. For years Jenner experimented until he proved it.

The word "vaccination" was coined from "vacca" the Latin word for cow, for this particular type of human protection, and was used solely to mean inoculation by cowpox, for more than fifty years.

Since nobody has ever told the story of this barnyard gift to science better than Dr. Jenner did, a part of his own account follows:

"There is a disease to which the Horse, from his state of domesti-



cation, is frequently subject. The Farriers have termed it the Grease. It is an inflammation and swelling in the heel, from which issues matter possessing properties of a very peculiar kind which seem capable of generating a disease in the Human body (after it has undergone the modification which I shall presently speak of) which bears so strong a resemblance to the Small Pox that I think it highly probable it may be the source of the disease.

"In the Dairy Country a great number of Cows are kept, and the office of milking is performed indiscriminately by Men and Maid Servants. One of the former having been appointed to apply dressings to the heels of a Horse affected with the Grease, and not paying due attention to cleanliness, incautiously bears his part in milking the Cows, with some particles of the infective matter adhering to his fingers. When this is the case, it commonly happens that the disease is Communicated to the Cows, and from the Cows to the Dairy-maids, which spreads through the farm until most of the cattle and domestics feel its unpleasant consequences. The disease had obtained the name of Cow Pox.

"It appears on the nipples of the cows in the forms of irregular pustules. At their first appearance, they are commonly a palish blue, or rather of a colour somewhat approaching to livid, and are surrounded by an erysipelatous inflammation . . . The animals become indisposed and the secretion of milk is much lessened.

"Inflamed spots now begin to appear on different parts of the hands of the domestics employed in milking, and sometimes on the wrists, which quickly run on to suppuration first assuming the appearance of the small vesications produced by a burn. Most commonly they appear about the joints of the fingers, and at their extremities; but whatever parts are affected, if the situation will admit, these superficial suppurations put on a circular form, with their edges more elevated than their centre, and of a colour distantly approaching to blue."

Dr. Jenner summed up by saying, "Thus the disease makes its progress from the Horse to the nipple of the Cow, and from the Cow to the Human subject." What he thus described was the scientific process of attenuation, not discovered until a century later. The potency of the virus was weakened in passage through lower animals.

Dr. Jenner added: "but what renders the Cow-pox virus so extremely singular, is, that the person who has been thus affected is forever after secure from the infection of the Small Pox; neither exposive to the variolus effluvia, nor the insertion of the matter into the skin, producing this distemper."

"In support of so extraordinary a fact," he went on, "I shall lay before my Reader a great number of instances."

He listed case histories as examples.

Physicians who were receptive to Dr. Jenner's arguments swiftly spread them all over the world. His doctrine, however, was not well received by many doctors who had large-scale practices in inoculation with the actual smallpox. This custom had, by this time, spread beyond the confines of the medical field.

In Europe some old women who were peddlers of cure-alls even started a custom of having social parties for administering smallpox inoculations.

It so happened that Dr. Jenner's discovery was first called to the attention of President John Adams and also of the United States by a close personal friend, a fellow-resident in the vicinity of the Port of Boston—Dr. Benjamin Waterhouse.

When John Adams had gone to Europe on a diplomatic mission in 1778, he met Waterhouse, then a medical student in Leyden, Holland. In fact, Waterhouse lived in Leyden with Adams and two of his sons. His portrait as a youth was painted by his close friend and companion, Gilbert Stuart, painter of the great men of his time. His mother was a first cousin of the famed London physician, Dr. John Fothergill.

After several years of work with Dr. John Halliburton, one of the best known doctors in Newport, Rhode Island, Waterhouse was sent to London by his parents to live as a protégé of Dr. Fothergill. He studied with the outstanding physicians of Edinburgh and London, before going to Leyden to get his degree. Adams enjoyed conversing on medicine and other subjects with young Waterhouse, and remained his intimate friend for more than forty years thereafter.

On his return to the United States (from getting his medical degree in Leyden), Dr. Waterhouse had been appointed on December 24, 1782, Professor of the Theory and Practice of Physic at the newly established medical school of Harvard College at Cambridge, Massachusetts. The appointment of Waterhouse probably resulted as much from his gift of making important friends, such as John Adams and Benjamin Franklin, as from his glittering medical education abroad.

In Cambridge, Waterhouse belonged to the American Academy of Arts and Sciences, which John Adams had succeeded in establishing in Boston in May of 1780. Dr. Waterhouse turned to the Academy when, early in the year 1799, he received from Dr. John Coakley Lettsom, his close friend and fellow Quaker in London, a copy of Dr. Edward Jenner's just-published book, the title by common consent shortened to *An Inquiry into the Causes and Effects of the Variolae Vaccinae or Cow-Pox*. There he made his first talk on vaccination. President John Adams presided over that meeting. Of this event, Waterhouse wrote, "the reception of this communication was much to my satisfaction especially with the *Illustrious President*, who to a profound erudition in law and politics, joins a no small knowledge of the science of medicine."

Dr. Waterhouse then wrote a review of Jenner's book for this country, published in the *Columbian Centennial* (a Boston newspaper) on March



Courtesy Henry A. Curtis, Photographer, Newport, R.I.

Photograph of the Gilbert Stuart portrait of Dr. Benjamin Waterhouse as a student, hanging now at the Redwood Library and Athenaeum, Newport, R.I. Dr. Waterhouse tried to get Federal Government backing for Jenner smallpox vaccine in the John Adams administration.

12, 1799. His article was titled, "Something Curious in the Medical Line." He wrote letters to England to obtain some of the vaccine.

Meanwhile, the Boston Marine Hospital, later to be significant in the life of Waterhouse, was being established.

On May 29, 1799, the Secretary of the Treasury wrote Benjamin



Lincoln, Collector of Customs at Boston, suggesting Castle Island as the proper place to set up a temporary hospital. He said that Dr. Thomas Welsh had been recommended as a "gentleman well qualified for the appointment as Physician to the hospital." On June 14, that year, Thomas Welsh advised the Collector that he was willing to attend the Marine Hospital.

The President was authorized in the enabling act for the Relief Of Sick And Disabled Seamen "to purchase or receive cessions or donations of grounds or buildings, in the name of the United States, and to cause buildings, when necessary, to be erected as hospitals for the accommodation of sick and disabled seamen." In Boston, a movement started at once for the building of a permanent hospital.

Public documents cited by Dr. John W. Trask, in his 1940 history *The United States Marine Hospital at the Port of Boston 1799-1940*, show that the business of setting up a temporary hospital there was brisk in 1799. The first treatment to a Service beneficiary was given in July of that year. This temporary hospital was fully functioning at Castle Island, said to be "the oldest fortified place in the United States," by March 1800. Its regulations had been read and endorsed by President John Adams.

In June, 1800, Dr. Benjamin Waterhouse obtained some of the cowpox vaccine he was seeking from Dr. John Haygarth, of Bath, England. With it, he succeeded in vaccinating his five-year-old son, Daniel Oliver Waterhouse. He then vaccinated the rest of his family—his wife, three other children, and two servants—seven persons in all.

On August 2, 1800, Dr. Waterhouse wrote to Dr. William Aspinwall, a Brookline, Massachusetts, physician who had a large-scale practice in inoculating by smallpox, saying that he had inoculated seven of his family with cowpox, and that he wished to confirm their immunity "by having some of them inoculated by you." If the cowpox virus really protected from smallpox they would not take the disease. Dr. Waterhouse told Dr. Aspinwall he could, of course, give the smallpox virus himself, privately, adding "but I wish to do it in the most open and public way possible." He noted that he had imported the cowpox, and "I conceive that the public have a right to know exactly every step I take."

Dr. Aspinwall replied he would give any assistance in his power, "to ascertain whether the Cow-pock would prevent the Small-pox." Dr. Aspinwall inoculated with smallpox one of the already-vaccinated Waterhouse domestics, a twelve-year-old boy, whose arm got sore, but, Waterhouse reported, "in a day or two it dried off, and grew well, without producing the slightest trace of the disease."

"One fact in such cases is worth a thousand arguments," wrote Dr. Waterhouse, who at once published articles in the newspapers of the prospect of exterminating smallpox.

Dr. Waterhouse then plunged into violent controversies over the worth of vaccination, with his fellow physicians of Boston. To his old



friend, President John Adams, he sent a copy of his newspaper article with an appeal for help in introducing vaccine to this country.

President John Adams was far too busy to take up the cudgels for vaccination in the year 1800. He was moving the Nation's capital from Philadelphia to Washington. He also was a candidate for re-election, with Vice-President Thomas Jefferson as his chief opponent.

It is possible that President John Adams had heard some of the angry rumblings among Dr. Waterhouse's colleagues on the Harvard medical faculty and among other physicians of Boston and Massachusetts in September of the year 1800. They were saying that Dr. Waterhouse was trying to set up a monopoly on the Jennifer vaccine—that he was trying to bargain to turn over supplies to physicians in exchange for profits from inoculations. As a longtime friend of Waterhouse, President Adams might well wish to steer clear of the controversy.

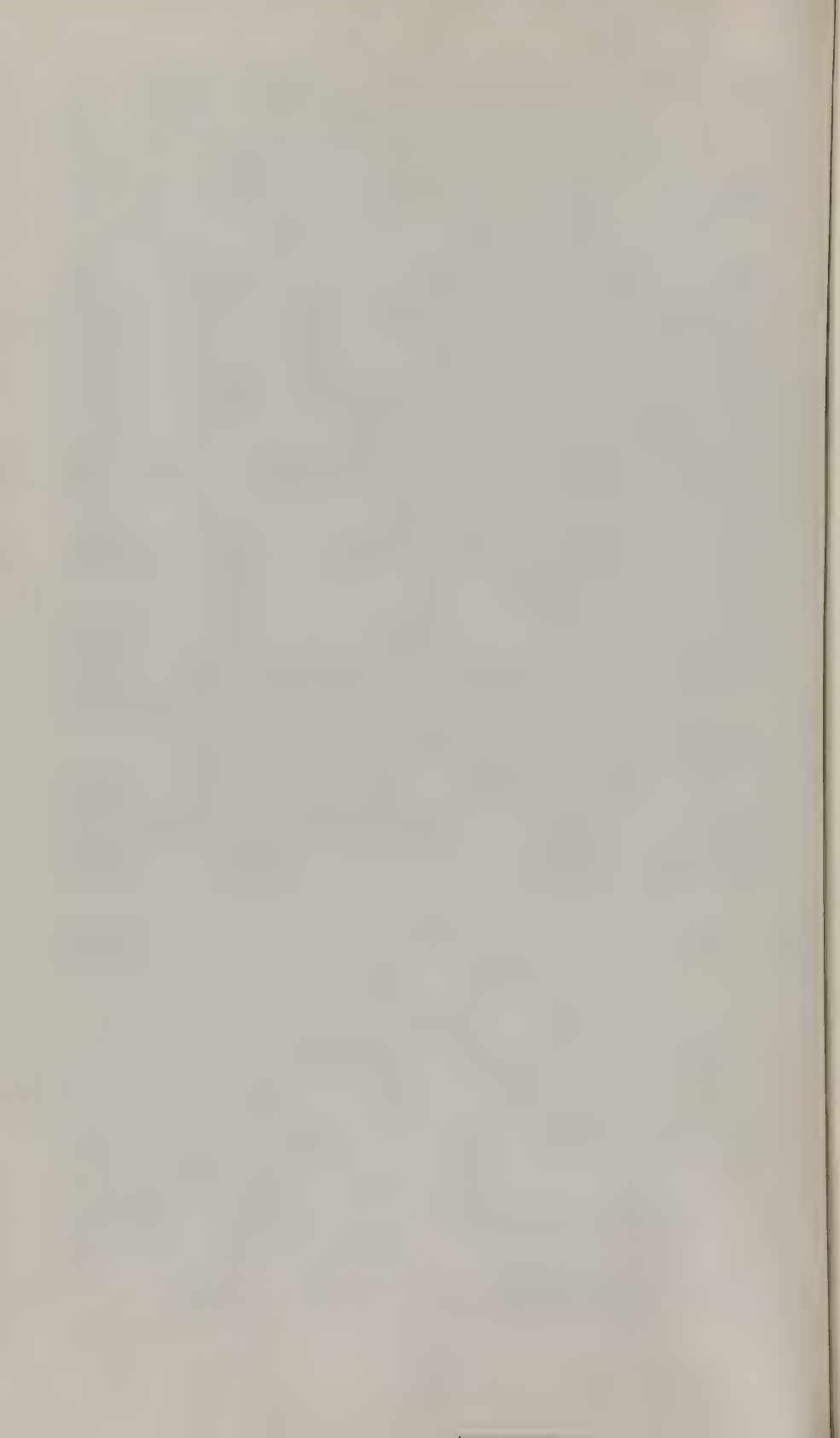
And so, on September 10, 1800, John Adams wrote to Dr. Waterhouse from his home in Quincy, Massachusetts:

"Dear Sir,—I have received and will communicate to the American Academy of Arts and Sciences your Prospect of exterminating the Small-Pox.

"I have read this History of the Kine Pox with pleasure. Your Zeal and Industry to give these Experiments fair play in America deserve the thanks of all the Friends of Science and Humanity.

"To disarm the Small Pox of its contagion is an enterprise worthy of a Hercules in medicine. With great regard, I am, Dear Sir, your obliged friend and humble servant."

President John Adams deliberately was missing his chance to introduce vaccination into the United States—an opportunity that was quickly seized by his successor. It was President Thomas Jefferson who became the "Hercules in medicine."



## Chapter 2:

### THOMAS JEFFERSON—HERCULES IN MEDICINE

1800–1809

Defeat went over the doorstep with President John Adams when he moved into the White House late in November 1800. But due to the peculiar election law of that time, soon to be changed, he did not know who had won the Presidency, Thomas Jefferson or Aaron Burr. The law stipulated that the man with the most votes was President, the second highest Vice-President. While Jefferson had been running for President and Burr for Vice-President, each received precisely the same number of votes in the electoral college. The election would have to be settled by the House of Representatives.

Such was the political situation when Dr. Benjamin Waterhouse, long-time friend of John Adams, on December 1, 1800, wrote Thomas Jefferson, whom he obviously was wagering on, as follows:

“Sir,

“Having long regarded Mr. Jefferson as one of our most distinguished patriots & philosophers, I conceived that a work which had for its end the good of the community would not be unacceptable to him—Under that impression I have sent him ‘*a prospect for exterminating the small-pox,*’ and am with the utmost consideration and respect

his very humble servt

Benjn Waterhouse

Honbe Thomas Jefferson”

Dr. Waterhouse could not have planted a seed on more fertile soil. No new aspect of any subject of general interest, starting with agriculture, architecture, and astronomy, and going on down the alphabet, failed to kindle the spark in Thomas Jefferson. Dr. Wyndham B. Blanton, who included a special study of Thomas Jefferson in the field of medicine in his 1931 book, *Medicine in Virginia in the Eighteenth Century*, called him “the outstanding scientist of Virginia during his lifetime” and indicated further that “Jefferson was probably better versed in medicine than the average doctor of his day.” The response of Jefferson to Dr. Waterhouse was quick and characteristic. He wrote from Washington, D.C., on December 25, 1800, as follows:

“Sir,

“I received last night, and have read with great satisfaction, your pamphlet on the subject of the kine-pock, and pray you to



Courtesy of Mrs. John F. Kennedy, The White House, Washington, D.C.

This portrait of President Thomas Jefferson was painted from life in Philadelphia by Rembrandt Peale in 1800, the year Jefferson was campaigning for the Presidency. It became his best-known image. When the Peale collection was privately dispersed in 1856, this portrait became the property of Charles J. M. Eaton, of Baltimore, Maryland, and hung in Peabody Institute, of which he had been President, until 1959. It was then re-discovered as the Rembrandt Peale "life portrait" of 1800 through the research of the Editors of the Jefferson Papers at Princeton University. Mr. and Mrs. Paul Mellon, of Upperville, Virginia, purchased and presented it, in 1962, to the White House where it now hangs.

accept my thanks for the communication of it.

"I had before attended to your publications on the subject in the newspapers, and took much interest in the result of the experiments



you were making. Every friend of humanity must look with pleasure on this discovery, by which one evil more is withdrawn from the condition of man; and must contemplate the possibility, that future improvements and discoveries may still more and more lessen the catalogue of evils. In this line of proceeding you deserve well of your country; and I pray you accept my portion of the tribute due to you, and assurances of high consideration and respect, with which I am, Sir,

Your most obedient, humble servant;

Thomas Jefferson.

Dr. Waterhouse, Cambridge"

The letter from Thomas Jefferson was heartening indeed to Dr. Benjamin Waterhouse as the year 1800 drew to a close. The prospect of introducing Dr. Jenner's discovery to America had seemed bright to him when he made his first successful vaccination on July 8, and followed it with some fifty more successes by September 1.

But he had become embroiled in controversies—with his fellow members on the Harvard faculty, with Boston physicians, with doctors all over New England who wrote asking him for vaccine, and with quacks who claimed that their spurious vaccines came from him.

The appendix of his publication, *A Prospect of Exterminating Small-pox*,—the very item he had sent to Thomas Jefferson—had a significant paragraph concerning his own position with regard to his fellow physicians. The word "faculty" then meant the medical profession as a whole. Writing of himself in the third person, he said:

"To those of the faculty who have applied to him by letter to supply them with matter for inoculation—he would just observe that as he has taken much pains in this business, run no small risk of reputation, as well as of personal feelings, there are *few* he trusts, that will wonder he is anxious to have the matter under his own eye until the practice is more firmly established by the public opinion."

Put bluntly, Dr. Waterhouse was telling the other physicians that he intended to maintain a monopoly on the cow-pox vaccine.

In his 1957 book, *Benjamin Waterhouse and the Introduction of Vaccination, A Reappraisal*, Dr. John B. Blake, medical historian, published full proof that Dr. Waterhouse, in the summer and fall of 1800, had sought to set up a monopoly in cow-pox vaccine. He tells of how Waterhouse bargained with physicians, in letters still preserved, to give them exclusive rights to the vaccine in their territories in exchange for one quarter of the profits from the inoculation. He exacted bonds from these doctors to make the contract fully binding. He was the only physician in Boston with a supply of vaccine, and he shared with no one in Boston.

After a thorough research of the entire career of Dr. Waterhouse, Dr. Blake came to this conclusion, published in the *Journal of Medical Education*, November 1958:

AN  
*INQUIRY*  
INTO  
THE CAUSES AND EFFECTS  
OF  
THE VARIOLÆ VACCINÆ,  
A DISEASE

DISCOVERED IN SOME OF THE WESTERN COUNTIES OF ENGLAND,  
PARTICULARLY

*GLOUCESTERSHIRE,*

AND KNOWN BY THE NAME OF

*THE COW POX.*

---

BY EDWARD JENNER, M.D. F.R.S. &c.

---

— QUID NOBIS CERTIUS IPSIS  
SENSIBUS ESSE POTEST, QUO VERA AC FALSA NOTEMUS.

LUCRETIVS.

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London:

PRINTED, FOR THE AUTHOR,

BY SAMPSON LOW, N<sup>o</sup>. 7, BERWICK STREET, SOHO:

AND SOLD BY LAW, AVE-MARIA LANE; AND MURRAY AND HIGHLEY, FLEET STREET

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1798.

Courtesy National Library of Medicine, PHS

Photograph of the original 1798 publication by Dr. Edward Jenner announcing his discovery and development of vaccination by cowpox. This volume is in the medical history collection of the National Library of Medicine. The drawings which Dr. Jenner included as illustrations made it possible for Dr. Benjamin Waterhouse in Boston to instruct President Thomas Jefferson at the White House and at his home, Monticello near Charlottesville, Virginia, so well that he succeeded in vaccinating his whole household.

"Whatever Waterhouse may later have claimed, the evidence of contemporary documents affords incontrovertible proof that all the while he professed philanthropic motives, he actually sought excessive personal pecuniary profit from monopolistic control of the vaccine."

Dr. Waterhouse was not only embroiled in controversies, meeting attacks with diatribes against his fellow physicians, but he was also having difficulties with his own vaccine matter. He was experiencing failures, sometimes vaccinating one person several times to get a successful inoculation. At first he concluded that the vaccine itself weakened "as it recedes from the cow" until "in process of time it gets worn out." Then he announced that vaccinations did not work well in winter weather.

He at last decided to write his troubles to Dr. Jenner, and to ask for new vaccine from England. He dropped his vaccination practice entirely from December 1800 until March 1801, when he received a new supply of potent vaccine from England, and advice from Jenner.

Dr. Jenner told him his failures had resulted from waiting too long to extract the cowpox "matter" from the arm of the person vaccinated. He gave Dr. Waterhouse his absolute rule on this subject—"never to take the virus from a vaccine pustule, for the purpose of inoculation, after the efflorescence is formed around it." The vaccine was to be taken on the eighth, or at the very latest, the ninth day.

In writing Dr. Jenner his thanks for the very specific information he had given for obtaining valid vaccine, illustrated by a color plate to show the appearance of the sore at the proper time to take the lymph for the purpose of vaccination, Dr. Waterhouse made this candid confession:

"Burthensome as it was at the time I do not now regret my perplexity. When I had lost my way, and wandered into the wilds of conjecture, I stood still. I gave out that the winter was an unfavorable season for this new inoculation, and by that means I suspended the practice throughout the country from that period until the arrival of fresh matter and your letter. Now we are going on again, but not with the faith and spirit of last season."

This letter shows that Dr. Waterhouse at least believed he had a United States monopoly on vaccination, and was in a position to stop the entire practice of it. Blake's research, however, showed that other legitimate physicians were vaccinating.

With the arrival of the new vaccine supply, Dr. Waterhouse abandoned all attempts at monopoly. He concentrated his energies on renewing public enthusiasm for smallpox prevention through cowpox inoculation.

Waterhouse hit upon a scheme which proved to be sheer genius. His idea was to popularize vaccination by having Thomas Jefferson, the President of the United States, introduce it to his home State of Virginia, and the South.

"Hearing by some gentlemen direct from the seat of government that the President wished for still more information and that he was

desirous to see the practice introduced into Virginia and the Southern States," Waterhouse himself wrote of this venture he had "sent him the vaccine virus and painted representations of the pustule in all of its stages on the white man and on the African."

The text of this letter written by the ever-verbose Dr. Waterhouse to President Jefferson on June 8, 1801, a seven-page summary of the entire subject of vaccination, is still extant and was re-published in the *Journal of the American Medical Association* on April 6, 1964. It was addressed to "President of the United States and President of the American Philosophical Society." The first paragraph ran:

"There may possibly seem a want of consideration in sending this letter, and what accompanies it, to draw attention of the President of the United States from the important concerns of our nation to a subject more nearly allied to medicine."

Dr. Waterhouse then described his own perplexity in choosing the proper person to introduce the vaccine in Virginia, and said:

"My view is this:—The President can at once fix his eye on some proper medical character to whom the first experiments may be entrusted, some cautious discerning person, perhaps his own family physician."

Having thus brought the experiment to Jefferson's very door, Dr. Waterhouse added:

"As your domestics are principally blacks, I have taken no small pains to procure a picture of the disease, as it appears on their skins."

Dr. Waterhouse said he personally had vaccinated only three Negroes, but that "the dark coloured picture, a representation of kine-pock on the skin of the Negro," was, as far as he could remember, just as accurate as were the pictures of all the stages of the vaccination on whites.

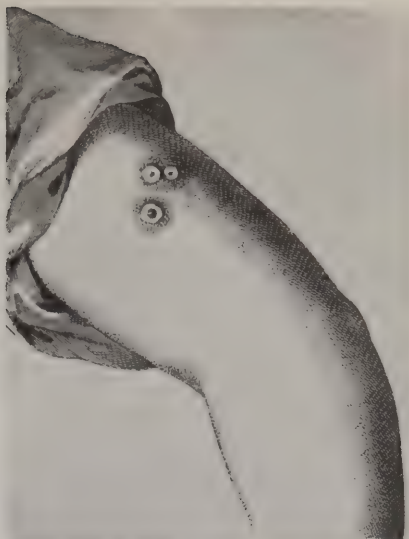
"The graphic art never, perhaps, received a greater honor," said Dr. Waterhouse.

He argued that if "the blessings of this invaluable discovery" were introduced into Virginia by young and inexperienced practitioners it would neither attract attention nor inspire confidence. "Whereas, if it came from Mr. JEFFERSON, it would make, like a body falling from a great height, a deep impression."

With this letter, Dr. Waterhouse sent Jefferson "some fresh infected thread, confined between two thin plates of talc, and inclosed in the laminae of a card; the whole pasted up so as to exclude entirely the external air. . . . The red thread marks the place where it is to be opened." He included in his letter all the admonitions sent to him by Dr. Jenner.

The letter from Dr. Waterhouse set President Thomas Jefferson off on a most meticulous experimentation which he at first put into the hands of physicians, and then conducted himself, against what was probably the most deadly disease of his time.





Courtesy National Library of Medicine, PHS

Four of the illustrations used by Dr. Edward Jenner in his book show the pustules which develop in vaccination against smallpox.

Replying to Waterhouse on June 26, 1801, Jefferson reported fast action. He said he had known the chance of success was greater if the vaccine were used immediately, and so he had given it to Rev. Dr. Edward Gantt, in Washington, D.C., instead of sending it on to Virginia. Jefferson described Dr. Gantt as "a long-established, judicious and successful physician in this place."

Dr. Gantt, also an Episcopal rector, was an outstanding figure in the Nation's Capital. Jefferson later that year appointed him Chaplain of the Senate, a post he held from December 9, 1801, to November 11, 1807.

However, all the President had to report in his next letter to Dr. Waterhouse was the hard luck of Dr. Gantt "for of numbers inoculated with it from the 18th to this time (June 26, 1801) no case appears to have taken the infection."

Jefferson asked Dr. Waterhouse "to inclose by post new matter two or three times successively until we can inform you it has at length taken."

On this letter, Dr. Waterhouse penned a note that he already had sent the first letter he had received from Jefferson to Dr. Jenner in England, "thinking that coming from the Chief Magistrate of the Americas it would not be displeasing to the originator of vaccination."

Dr. Waterhouse celebrated July 4, 1801, by publishing that more than 200 persons in this country had been inoculated with the smallpox "after having gone through the kine pox, without the least trait of infection."

President Jefferson continued his eager efforts to obtain a take through Dr. Gantt. On July 16, he wrote his daughter, Mrs. Martha Randolph, that the second batch of vaccine received "6 days ago & immediately used will prove this day whether it takes or not." It did not take.

"I am promised by Dr. Waterhouse of Boston successive weekly supplies until it takes," Jefferson added. "If the matter be genuine there is no doubt it prevents the small pox . . ."

Jefferson told his daughter that he had sent vaccines and instruction matter to Dr. Wardlaw at Monticello.

On July 24, Dr. Waterhouse sent a third consignment of vaccine to Washington, with the instruction that it was highly probable that the quill and thread impregnated with vaccine virus "will communicate the disease if it be thrust under the scarf skin, and drawn slowly and gradually through it."

The next day Jefferson wrote Waterhouse that he hoped this third supply would be more successful in the hands of Dr. Gantt than the first two had been. The President said he would soon leave for Monticello, "being unwilling to work myself on the tidewaters during the months of Aug. & September, when situations which generate bilious complaints are most dangerous." He asked Waterhouse to send his next supply, the fourth, directly to Dr. Gantt. Jefferson suggested that the fourth consignment be put "into a phial of the smallest size, well corked & immersed in a larger one filled with water & well corked."

"It would be effectively preserved against the air," said the ever-inventive Jefferson, "and I doubt whether the water would permit so great a degree of heat to penetrate to the inner phial as does when it is in the open air. It would get cool every night, and shaded every day under the cover of the stage, it might perhaps succeed."

Dr. Waterhouse painstakingly carried out these directions. But his first report of success came from Jefferson and Dr. Wardlaw at Monticello, and not from Dr. Gantt in Washington.

On August 8, 1801, Jefferson wrote Waterhouse that Dr. Wardlaw had vaccinated six persons of Jefferson's own family on August 6. On August 14, he wrote again drawing a little diagram of the type of pustule which, he said, had shown up on the arms of two of the persons inoculated. Jefferson said that the inflammation was "about  $\frac{1}{2}$  an inch all around from the pustule." He added: "I learn indirectly that Doctr. Gantt's essays have all failed. Should ours succeed, he shall be supplied hence."

When Waterhouse took this letter from the post office fourteen days later, he was so exultant he could not wait until he got home to answer it. He wrote to Jefferson that he had "stepped into the first house to write a line."

"I congratulate you Sir, in having produced the true disease, of which I have little or indeed *no doubt*," he said.

As to the continued failures in Washington, his comment was: "I believe there is an art in inserting the matter, which Dr. Gantt has not acquired, which Dr. Wardlaw has. I hope he will inoculate from patient to patient, and never trust to the thread when he has a recent pustule to take it from."

On August 21, Jefferson triumphantly wrote to Waterhouse that the two cases he had earlier reported had indeed been successful; that vaccine sent from Boston on July 26 had succeeded with two more persons, and that sent on August 4, had taken on four more. From the first two subjects others had been inoculated "so that we have 20 now of my family on whom the disease has taken."

Jefferson sent Dr. Gantt vaccine gathered from those inoculated at Monticello. On September 17, he was able to report to Dr. Waterhouse:

"I received by the last post your favor of Aug. 28, and by the same a letter from Dr. Gantt informing me that the matter I sent him from hence had taken in three of the subjects into whom it had been inserted that from these he had inoculated others, so that they now are in full possession of the disease at Washington. I have also sent matter to Richmond, Petersburg, and several other parts of this State so that I have no doubt it will be generally spread through it, notwithstanding the incredulity which had been produced by the ineffectual experiments in Richmond and Norfolk."

The President said that he intended to return to Washington in a week and to publish there the instructions Dr. Waterhouse had given



for administering the vaccine, as he had promised Dr. Gantt he would do "as soon as the public should be possessed of the disease."

Knowing that he soon was to have public mention by the President himself, and that it might bring into broader dissemination the charges of monopoly against him, Waterhouse, on October 1, 1801, penned a flattering letter to Jefferson, which was, in effect, a defense of himself. He congratulated the President on having effectively planted vaccine at Washington as well as in Virginia.

His account of the dire things which had happened to himself while introducing the vaccine in New England ran along in this self-vindicating fashion:

"Several practitioners rode night & day from the extreme parts of Connecticut and Vermont to Cambridge to get before hand of their neighbors. Sometimes the two rival Doctors of the same town were at my house at the same time, each wishing to outbid the other!

"An association of six practitioners in New Hampshire absolutely new districted the State, and then applied to me for the matter, and offering me their conjoint bonds to give me a fourth part of all that were inoculated by them & their subordinates! so that before I well knew the spirit & extent of the plan, I found myself the centre of a vile speculation. Some went through Vermont & Connecticut calling themselves my agents, commissioned from me to sell the matter & spreading a spurious disease & endangering the lives of the people, by the abominable cheat."

Waterhouse told Jefferson he had exposed and ended the Connecticut scheme in a letter to the president of Yale College, which that gentleman had published "with a suitable introduction in his own name."

On November 5, 1801, in a letter to Mr. John Vaughn, written to transmit a supply of vaccine to Dr. John Redman Coxe in Philadelphia, Jefferson summarized his summer's work in protecting against smallpox around Monticello as follows:

"In the course of July and August, I inoculated about seventy or eighty of my own family; my sons-in-law about as many in theirs, and including our neighbors who wished to avail themselves of the opportunity, our whole experiment extended to about two hundred persons."

He said that except in one case in which there was high fever and some delirium the resulting illnesses were slight, and that the vaccine had "failed to infect in not more than I think three or four out of the two hundred cases."

Jefferson's next spectacular step was to introduce vaccination to the Indians in the month of December 1801. Waterhouse told the story in a letter to Jenner.

"A grand embassy of certain tribes of the Indians had come to the city of Washington while the Congress was sitting," he wrote.

"The chief of this embassy was named Little Turtle. The President one day sent for this warrior and his interpreter, and told him he had a



matter of great importance to communicate to him for the benefit of the whole nation of his *Red Children*, for these savages always call him *Father*.

"He then told him the GREAT SPIRIT had lately made a precious donation to the enlightened white men over the great water, first to a single person, and from him to another on this side of the waters, and then explained to him the history of the cow or kine-pox as a gift from Heaven to preserve them from the small-pox, and even to banish it from the earth.

"The chief heard him with marked attention, and desired first to receive the benefits of it himself. This was performed soon after by the Rev. Dr. Gantt, Chaplain of Congress, and also upon nine or ten more warriors in his train. On their departure, the President caused them to be supplied with the virus; and the interpreter (a white man) took a copy of the directions for conducting the process I had transmitted to the President."

Dr. Waterhouse devoted quite a bit of time in the year 1802, right after his success with Jefferson, to silencing the Boston doubters. On May 31, he petitioned the Boston Board of Health to make a public experiment of the merits of vaccination. Waterhouse outlined how this test should be set up. The Board accepted, and appointed ten physicians to observe the experiment with Dr. Waterhouse. On August 16, nineteen boys were vaccinated with cowpox. A hospital was especially prepared on Noddle's Island, in Boston harbor, to receive these boys, one other vaccinated boy, and two who had never been vaccinated. All were inoculated with fresh smallpox. The thirteen boys who had been vaccinated did not take it. The two others did and survived. All the vaccinated boys who had remained well were then re-inoculated with smallpox matter taken from the two boys who had caught the disease. They did not take smallpox. The ten observing physicians reported to the Board of Health that the experiment had established beyond dispute the value of cowpox vaccination as a protection against smallpox. This undoubtedly was one of the first controlled medical tests on human beings in this country. On December 16, 1802, the Board of Health issued a broadside to this effect, a model in public health education.

By the close of the year 1802, President Thomas Jefferson thus could consider vaccination for smallpox firmly established in this country. History offers no comparable account of a major medical discovery having been personally introduced by a President of the United States. The closest was many years later when President Franklin D. Roosevelt set in motion the forces which resulted in the development of a vaccine for the disease of which he was a victim, poliomyelitis.

President Thomas Jefferson did not neglect the national health problems passed on by his predecessor, President John Adams. Indeed, he more than carried forward the Marine Hospital Service which President John Adams had established for disabled seamen. When the time came for

Thomas Jefferson to ask for the construction of a Marine Hospital in Boston, he already was contemplating the purchase by the United States of the city of New Orleans. In the same message of February 24, 1802, that he asked for the money to build the Boston hospital, he made a plea for setting up a United States Marine Hospital in New Orleans which then belonged to Spain, and soon would be ceded to France!

"I communicate to both Houses a report of the Secretary of the Treasury on the subject of our Marine Hospitals, which appear to require legislative action," said Jefferson.

"As connected with the same subject, I also enclose information respecting the situation of our seamen and boatmen frequenting the port of New Orleans, and suffering there from sickness and the want of accommodation. There is good reason to believe their numbers greater than stated in these papers. When we consider how great a portion of the territory of the United States must communicate with that port singly; and how rapidly that territory is increasing its population and production, it may perhaps be thought reasonable to make hospital provisions there of a different order from those at foreign ports generally."

On the subject of New Orleans, the principal exhibit sent by President Jefferson to Congress was a letter from Evan Jones, Esq. from that city to the Secretary of State.

"A great number of American citizens, especially seamen and boatmen from Ohio, die here yearly for want of a Hospital into which they might be put and taken care of," he said, "not that they are refused admittance into the Spanish poor hospital, but that building is much too small for the purpose. No public house of any reputation will take them in, and consequently they lie in their ships or boats, in which they die miserably after frequently subjecting the humane among their countrymen to much trouble and expense.

"Would not this be an object, sir, worthy of the attention of the Government of the United States?"

An estimate was made that each year 200 vessels came into New Orleans from the sea and 350 to 400 boats came down the Mississippi River.

Congress acted quite promptly on the matters called to attention by Jefferson. The act of May 3, 1802, the last day of that session of Congress, authorized him to "take such measures as may be expedient" to provide medical assistance in the port of New Orleans "if this could be done with the consent of the government having jurisdiction over the port"—at that time Spain. The master of every boat going down the Mississippi River was required to pay twenty cents per month for every person employed. An appropriation of \$3,000 was specified for starting a hospital at New Orleans, and the President was authorized to appoint a director. The main portion of the bill was devoted to the New Orleans Hospital.

However, the same legislation provided \$15,000 for the erection of a Marine Hospital at Boston.

It also authorized admission of foreign seamen to hospitals in this country at the rate of seventy-five cents a day—a later cause of much complaint.

A manuscript thesis for a Master of Arts degree, titled *The New Orleans Hospital 1802–1861*, submitted to Tulane University, New Orleans, in 1950, by William Eugene Rooney, said that names and dates in previous histories on this subject had been badly confused. Rooney found that Dr. William Bache was the first Director named, not Dr. William Barnwell. He explained that Dr. Barnwell had been recommended to President Jefferson by his friend Dr. Caspar Wistar of Philadelphia. But Jefferson chose instead Wistar's brother-in-law, Dr. Bache, the grandson of Benjamin Franklin.

The Rooney account states that Daniel Clark, American consul in New Orleans, visited New York and reported that the Spanish Government would approve the United States Marine Hospital, but said that the funds were inadequate. He recommended using the money only in the unhealthy months.

When Dr. Bache arrived in New Orleans March 27, 1803, Rooney said, he was told no permission existed for setting up the hospital as Louisiana had been transferred to France. Dr. Bache put his United States seamen patients into the Charity Hospital in New Orleans founded in 1736, and still in existence. He used Federal funds to pay for them, sending protests to Washington on the inadequacy of the funds. Dr. Bache himself asked for a raise, which was denied by President Jefferson on the recommendation of Secretary of the Treasury Albert Gallatin, and Dr. Bache returned to Boston.

After the Louisiana Purchase, an Act of February 24, 1804, extended the laws relating to sick and disabled seamen to the new territory.

The Collector of Customs of the port of New Orleans took on the task of arranging with the Charity Hospital for the continued care of seamen. Dr. Barnwell now was sent to New Orleans as Director of the Marine Hospital. He arrived there, Rooney said, in August 1804, and recommended a new Marine Hospital. However, William Brown, Collector of Customs, found fault with Dr. Barnwell who was removed in 1812. His duties were given to Charity Hospital. Rooney stated that Charity Hospital provided ward space for the Federal Government only 24 years—from 1802 to 1826—not 40 years, as reported in many texts.

How the Marine Hospital Service had fared since John Adams signed the law creating it on July 16, 1798 was shown in the report made by Secretary of the Treasury Albert Gallatin to President Thomas Jefferson and sent by him to Congress on February 24, 1802.

Secretary Gallatin listed five different categories of ports in which



hospitals had been established or in which temporary relief was afforded to seamen in boarding houses, as follows:

1. In Boston, Newport, Norfolk, and Charleston, S.C., Marine Hospitals had been established under laws of Congress, "exclusively appropriated to the use of seamen, and solely supported out of the funds raised under the authority of the United States." However, Gallatin noted that the hospital at Newport had lately been discontinued, and its patients put into boarding houses.

2. In Baltimore, the hospital was operated by the Board of Health, using Federal funds.

3. In New York and Philadelphia, sick seamen were cared for in the city hospital, at a fixed rate per week, paid for from the Marine Hospital fund.

4. In Portland, Maine, New London, Connecticut, Wilmington, New Bern, and Edenton, North Carolina, and Alexandria, Virginia, temporary relief was given from the Federal fund in private boarding houses.

5. In his fifth category, Secretary Gallatin placed only Savannah, Georgia, from which he said "no returns have been received." This was translated in the *Medical Repository* of 1803 as "some provision has likewise been made in Savannah."

Secretary Gallatin said the whole sum collected from seamen up to September 30, 1801, had been \$147,875.58, of which \$6,185.33 had been used to buy the hospital near Norfolk. He said this should be a Navy hospital, and charged to them. He described it as much too large, and in need of repairs. He said \$74,636.51 had gone to the relief of sick seamen; and \$43,761 was unexpended in the hands of Collectors. He reported \$6,707.37 as being due to agents at Newport, Norfolk, and Charleston who had spent more than they received. He said the hospitals at Norfolk and Charleston would have to be closed "unless Congress shall think it proper to grant some aid, or to make such alterations in the law as will permit a more general application of the fund."

In 1803, Dr. Samuel Latham Mitchill and Dr. Edward Miller, of Columbia University, New York, published in the *Medical Repository* an epic account of the beginning of a Marine Hospital and Quarantine Station on Staten Island. Dr. Mitchill himself had petitioned the Federal Government for precisely such a station. Congress failed to empower the Federal Government to conduct quarantine, so New York City had to construct its own station.

This eye-witness article describing ship-borne disease during the administration of Thomas Jefferson, was written August 8, 1802, by Dr. Joseph Bayley, of the Staten Island base.

Dr. Bayley described the ghastly epidemics landed from incoming ships upon the Staten Island Marine Hospital and Quarantine Station before it was ever completed. Its planned capacity was two hundred patients, he said, yet nine hundred and forty-five were admitted into the Marine



Hospital from May 1 to December 1, 1801. One hundred and ninety of them died. He presented a tally of eleven of the vessels. The three with highest disease and death scores were the *Penelope*, which came in June 10th with 262 persons with yellow and ship fever, smallpox, and dysentery, of whom 74 died; the *Brig Flora*, which arrived July 29th with 192 ill of yellow fever and ship fever, of whom 38 died; and the ship *Nancy*, which came in September 28th, with 228 ill of ship fever and dysentery, of whom 32 died.

When the *Penelope* arrived, Dr. Bayley said, there were twenty patients in the hospital in which there were, at the time, not accommodations for more than fifty.

"We were painfully necessitated to crowd forty in a ward forty feet by twenty, that could not comfortably contain more than sixteen," he said. "The three days following we pitched a few tents and received fifty more sick from the ship."

The City of New York made a grant of fifteen hundred dollars to erect buildings. In two weeks three buildings, forty feet by twenty were put up. And "in the following eight days upwards of one hundred more sick were sent from among her passengers." The well passengers were put to work making their own shelters.

By the time the sick of the *Penelope* were made comfortable, his story went on, the *Flora* arrived, and "in a few days the wards were again crowded with one hundred and ninety-two sick persons from this vessel." The great fatigue of the nurses caused many of them to sicken.

Then came the *Nancy*, with its filthy load of passengers with dysentery. They filled even "the large two story building which had been erected for the healthy passengers." Dr. Bayley painted a gruesome picture of the *Nancy*, under Captain John Heron, "chartered by a commercial house for the express purpose of bringing people to America."

"That more persons might be stowed away than the accommodation of the ship would allow of," he said, "temporary berths were fitted on deck, in which about 100 of these distressed emigrants were destined to be eleven weeks; six feet in length and five in breadth, just high enough to sit up in, and a door to creep in at, was allotted for four persons each." When dysentery struck, "the upper deck was overshoes in filth . . ." "The distress exhibited on board this ship surpassed all I had ever before seen."

The *Medical Repository* continued to promote vaccination as well as quarantine. It published a second article by Waterhouse on that subject in 1803.

President Jefferson also kept right on having ideas for increasing the use of vaccine. When he organized the Lewis and Clark expedition late in 1803 to spend more than two years exploring the vast lands he had purchased from France, he included among his instructions: "Carry with you some matter of the kinepox, inform those of them with whom you may be

of its efficiency as a preservative from the small pox; and instruct & encourage them in the use of it."

The prospect of a new \$15,000 Marine Hospital at Boston appealed so strongly to Dr. Benjamin Waterhouse, who had been for two decades professor of physic at Harvard, that he applied for the position of its medical director. He first presented his case personally to Benjamin Lincoln, Collector of Customs, and then set it down in writing. That letter, still pointed to as a trailblazer in public health thinking, follows in full:

"To Gen. Lincoln.

"Cambridge Feb. 9th, 1803.

Dear Sir:

"Since conversing with you on the subject of the Marine Hospital about to be erected in this neighborhood, I have thought it would afford you an opportunity of considering the matter to more advantage, in all its relations, were I to express my Ideas on paper.

"About twenty years ago a medical school was annexed to this university. A course of lectures is given annually, in six branches of medicine, by three professors. We have, however, felt and lamented the want of a hospital to which our pupils might repair to see our doctrines reduced to practice.

"This defect has been particularly felt in that branch which falls to my lot, viz the theory and practice of Physic, and in that of Surgery. Many and various have been the attempts to supply this deficiency but they have all failed and left only the distant hope of a marine hospital for seamen in general, or a particular one by our National Government.

"When President Washington visited this university, in the course of his tour through these Northern States, President Willard conversed with him, in my hearing, on this very subject and suggested the great public utility of an hospital in the single point of medical instruction, and particularly as it regarded surgeons for the Army and Navy; Gen. Washington coincided with Dr. Willard in the opinion, and said that he thought it highly probable that our medical school would enjoy that advantage.

"The late Mr. Russell declared repeatedly, to me, that he would give more than merely the ground on which to build an hospital on two conditions; 1st, that it should be erected in his native place, Charlestown; 2nd, that it should be extended to the instruction of medical students, especially for the navy; his idea however extended beyond seamen in the service of the Government.

"I will relate a few facts to show how much we need the privilege of such a hospital to complete our medical instruction. A few years since, when we were arranging our military matters and of course appointing surgeons for the Army and Navy, a very considerable proportion applied to me for certificates of recommendation for these stations. Most of the applicants were young men who went from school into the college where, in the last part of their last year, they read a few books on medicine and

attended a course of our lectures, then lived perhaps a year or two with some country practitioner; but most of them never saw an amputation, the operation of trepanning, and some of them not even the reduction of a broken or dislocated bone.

"As to fevers and the common diseases of seamen and soldiers, was a knowledge they had yet to acquire; they and their connections were nevertheless much disappointed and hurt at my hesitating to declare in writing that I deemed them qualified to take the charge of the health of two or three hundred men at sea—in this state of things I visited Pres. Adams, at Quincy, and acquainted him with the slender qualifications of the medical candidates in general, and as I found I must give letters of recommendation, I explained that such recommendation only meant the best we had—but that the very best was, in my opinion, inferior to a surgeon's mate in a British Frigate.

"I thought I could speak with decision on this head having been two years in one of their marine hospitals, previous to our revolution, it is well known how our poor seamen suffered for want of proper medical assistance a few years since.

"In Philadelphia and New York medical instruction is on a better footing than it is with us in this quarter, for the obvious reason they have hospitals for the admission of pupils to see the course of diseases as well as surgical operations. In those cities they, in imitation of our elder brethren in Europe, made their hospitals answer two very important purposes; viz, the relief of the sick and the education of Physicians and Surgeons.

"With this plan, in view of making the marine hospital answer the purpose of medical instruction as well as the primary one of comforting and healing the sick and wounded, I have it in contemplation to apply for the appointment of Physician of it; as my view in conducting it, the general idea is,

"1st. To fulfill every thing required by its institution respecting the sick and wounded. The rules and orders respecting them to be considered as superceding all others.

"2nd. To introduce pupils of physic and surgery to the bedside of the sick and to all important chirurgical operations subjected to all those good and wholesome rules established in European hospitals.

"3rd. To give a set of clinical lectures comprehending what may be called extemporaneous practice of physic and surgery, and also a short course of lectures on the most approved mode of preserving the health of seamen, with other matters, that may arise out of existing circumstances which cannot at present be foreseen.

"I have communicated my ideas to but one member of Congress, Dr. Mitchell, who is so well pleased with the design that he advised me to lose no time in making my application. I therefor send you this sketch of my plan but shall wait for your further opinion upon it, and will act



accordingly. In the meantime I remain with high respect and esteem,

“&c. &c. Benj’n Waterhouse

“To Gen Lincoln  
Boston.”

Dr. Waterhouse envisaged a hospital built by Federal funds to serve as a teaching hospital for a great university. He specified that the clinical lectures he proposed setting up in the Marine Hospital should also be for the better training of surgeons for the Army and the Navy. This was twenty years before Dr. Thomas Harris, naval surgeon, wrote a strikingly similar letter which resulted in his appointment as founder of the first school of Naval Medicine in this country—at the University of Pennsylvania, in Philadelphia.

Dr. Waterhouse foresaw an intern system whereby patients at all times would have at hand the services of an advanced medical student. He set forth the lasting principle that the needs of the patient come first. However, he also advocated that ambulatory patients have an outpatient service, so as not to take up beds needed by the seriously ill. He specifically showed the ways in which doctors were being poorly trained, and recommended a better training system.

But Dr. Waterhouse did not get the position of medical director when the new Marine Hospital, first to be constructed by the Federal Government, was opened in January 1804.

At that time Dr. Thomas Welsh, appointed by President Adams, did indeed step down. He became “Health Physician to the Port of Boston.” President Jefferson appointed Dr. Charles Jarvis, another Boston physician, as medical director of the new Boston Marine Hospital. Dr. Jarvis had been a member of the Massachusetts convention that adopted the Federal Constitution. He was for many years a member of the State Legislature.

The hospital he headed cost \$14,842.34. It was built on land assigned to the Marine Hospital Service from acres purchased in Charlestown for a Navy Yard. The Secretary of the Treasury had offered in the newspapers a \$50 premium for the best plan for a two-story hospital of 4,000 square feet with a cellar below. The rooms for the sick were to be well-aired, from 12 to 20 feet square, 10 feet high on the first floor and 8 feet on the second. Only one plan was submitted—by Asher Benjamin. It was used, with alterations. The builders were Joseph Eaton, Ward Jackson and Thomas Hunsable.

In the year 1804, a yellow fever epidemic struck Alexandria, Virginia. Physicians at that time were hotly debating whether or not yellow fever was “infectious or endemic.” The President of the United States took time to go to the nearby town and make a first hand study of the matter.

In September of 1804, the learned John Redman Coxe, (who had the largest private library in America—about 1,500 volumes) started the



second American medical periodical, *The Philadelphia Medical Museum*. Later critics said the *Museum* lived up to its title, as Dr. Coxe, who died at ninety, "was obsolete two generations before his death." Much of the library of Dr. Coxe is now in the National Library of Medicine, Bethesda, Maryland.

Another early journal was the *Baltimore Medical and Physical Recorder*, edited by Tobias Watkins, the doctor in charge of the Baltimore Marine Hospital, on a contract basis. He gave case histories from Marine Hospital Records. At least two of them included effects of the Napoleonic wars. Jean Delage, about forty, a seaman from the French warship *L'Eoli* had contracted a venereal infection while his ship lay at Norfolk. Watkins explained that the French fleet had undergone "the almost total destruction of the Surgeon's stores" in a storm, "so that this man was without the necessary means to stop the disease." He was cured with "mild muriate of mercury." Another patient, L. D., "a seaman 25 years of age, was treated with nitrate of potash for an acute bilious attack." He had "just arrived from Holland in a ship with ninety others, all of whom had been captured and imprisoned for some months previous to the sailing of the ship."

Dr. Jarvis, Director of the Boston Marine Hospital, died of "lung fever" in November 1807, at the Boston Marine Hospital. The Secretary of the Treasury advised the Collector at Boston that President Jefferson had directed that Dr. Benjamin Waterhouse be appointed physician to take his place. He asked the Collector to please so notify Dr. Waterhouse. Jefferson had decided to make good on a phrase he included in his first letter to Waterhouse, "you deserve well of your country."

Enemies of Dr. Waterhouse in Boston sent protests to President Jefferson. To one of them the President wrote:

"I return you the letter you were to communicate to me on the appointment of Dr. Waterhouse to the care of the Marine Hospital. When he was decided on (Nov. 26) no other Candidate had been named to me as desiring the place. The respectable recommendations I had received & his station as Professor of Medicine in a college of high reputation, sufficiently warranted his abilities as a Physician, & to that was added a fact well known, that to his zeal the U.S. were indebted for the introduction of a great blessing, Vaccination, which has exterminated one of the most loathsome of mortal diseases which has afflicted humanity, some years, probably sooner than would have otherwise taken place. It was a pleasure therefore as well as a duty, in dispensing the Public favors, to make this small return for the great service rendered our country by Dr. Waterhouse."

Dr. Waterhouse set to work to carry out the recommendations he had made in his letter four years before. He set up clinics for Harvard medical students in the hospital. He started an outpatient service for persons with minor ailments and injuries. He started the intern service. He found that the chapel of the hospital was being used as a storeroom, filled with bed

frames and hospital utensils. He had a wooden building constructed for such storage—part barn and part storeroom. He had the chapel restored to the use for which it was planned, and set up a system of regular religious services. He drafted added regulations for patients.

Being a botanist as well as a physician, he had the grounds landscaped. The burying ground was screened with acacia trees. Fast-growing trees were set out for wind breaks. Cherry and apple trees were planted to provide fruit in the diet.

Dr. Waterhouse repeatedly said that his appointment from President Jefferson was a reward for his work in introducing vaccination. Fourteen years after his appointment to head the Boston Marine Hospital, Waterhouse wrote former President John Adams "President Jefferson gave me a medical appointment worth 1500 dollars per ann. avowedly for my successful labours in vaccination."

Even after he had left the White House and his friend James Madison was President, Jefferson succeeded in getting Congress to pass an "Act to Encourage Vaccination," signed by Madison on February 27, 1813. It authorized the President to appoint an agent to preserve "the genuine vaccine matter" and to "furnish same to any citizen of the United States wherever it may be applied for, through the medium of the post office." It further provided "that all letters or packages not exceeding half an ounce in weight, containing vaccine matter or relating to the subject of vaccination, and that alone, shall be carried by the United States mail free of any postage." The word "Vaccination" had to be written on the outside, with signature by the agent. A \$50 fine was set "if said agent shall frank any letter or package in which shall be contained anything relative to any subject other than vaccination."

President Madison appointed as agent for vaccine Dr. James Smith, of Baltimore, Maryland, an early cow-pox enthusiast who named his first-born son Edward Jenner and had him vaccinated when he was twenty-three days old. Dr. Smith was not only the vaccine agent for the United States, but also for the States of Maryland and of Virginia. As National agent he employed twenty agents to travel through the country and give free vaccinations as epidemics threatened. They were estimated to have vaccinated 100,000 persons. For many years he tried to get Congress to set up a National Vaccine Institution, and conducted one under that name himself, hoping for eventual Federal financing.

Dr. Smith was removed from his National office by President James Monroe on April 10, 1822, because Representative Hutchins G. Burton, of North Carolina, demanded repeal of the law under which he functioned. Representative Burton charged that Dr. Smith had sent to Dr. John F. Ward, of Tarborough, North Carolina, vaccine that had resulted in the deaths of ten men. It developed that Dr. Ward had indeed vaccinated widely with real smallpox scabs sent by some chance to him wrapped in a

piece of paper marked "Variol." Dr. Smith had sent his vaccine to Dr. Ward in a personal letter between two pieces of glass.

Congress paid no attention to the explanations of Dr. Smith. Three days after he was dismissed, the special committee in charge of the investigation, headed by Representative Burton, recommended repeal of the vaccination law. It was repealed, effective May 4, 1822.

However, vaccination was by then so well established in the medical profession that it needed neither the franking privilege nor free distribution to survive.

President Thomas Jefferson had indeed been a "Hercules in Medicine," a phrase used by his predecessor John Adams. At the urgings of Dr. Benjamin Waterhouse, he had established vaccination in the original States of the United States, and had sent it on its Westward way. He had expanded the Marine Hospital system to New Orleans and had secured the building of a new Marine Hospital in Boston Harbor. In charge of that hospital at Charlestown, Massachusetts, he had left Dr. Benjamin Waterhouse in reward for his promotion of vaccination.

## HISTORIC WATERCOLOR

While this book was being written, the very old original watercolor painting of the first United States Marine Hospital at Charlestown, Massachusetts, Port of Boston, which had become so spotted by some liquid that it could no longer be reproduced, was restored by an expert and is here included.



Courtesy of the U.S. Naval Academy Museum, Annapolis, Maryland

It has also been reframed, so that it again can be put on display by the United States Naval Academy Museum at Annapolis, Maryland, which owns it, and, under a joint agreement, displayed occasionally by the Public Health Service which cooperated with the Museum in having it restored.

The great historical significance of this painting, which has belonged to the Federal Government for well over a century, was established by the *1896 Annual Report of the Public Health Service* which carried a hand-drawing of it and an historical article written by Surgeon H. W. Austin, of PHS. This author said:

"The following inscription is found on the back of an old water color of the first United States marine hospital which was presented to the Naval Museum in the Charlestown Navy-Yard by Asst. Surg. S. D. Townsend, United States Marine-Hospital Service."

The inscription, in smaller type, ran:

"This building formerly stood in the navy-yard on the site of the present officers' quarters near Chelsea Bridge. Into it were admitted all the sick and disabled of the Navy, as well as those from the merchant



service. Here also were received all the wounded of the frigates *Constitution* and *Guerriere* after their action in 1812. The hospital was removed to Chelsea in 1828.

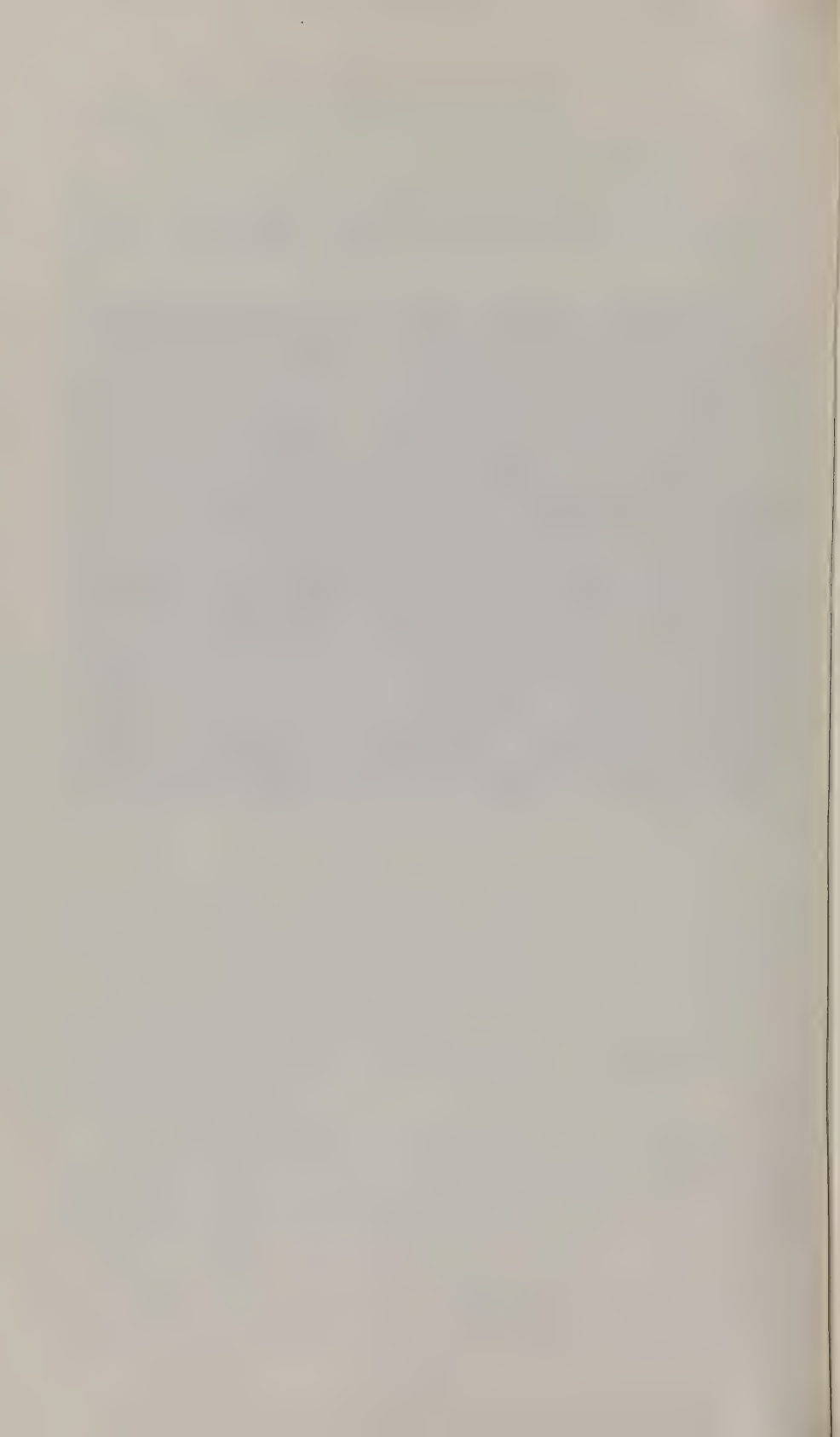
“Presented by Dr. S. D. Townsend, 1852.”

Dr. Austin said that during the War of 1812 many sick and disabled seamen and marines from other U.S. frigates, including the *President*, *Congress*, *United States*, and the brigs *Syren* and *The Hornet* were cared for there.

“Many sick and wounded British prisoners captured in the War of 1812 were also treated in this hospital,” he added.

The description of the hospital said to be “ready for occupancy December 1803,” as given by Dr. Austin ran:

“This building, a two-story brick with a basement, 100 by 40 feet, was located upon the right bank of the Mystic River in what is now a part of the Naval Reservation in Charlestown, containing nineteen rooms, a large hall, and a kitchen. The grounds composed 5 acres of land, upon which a few years later were built a barn and other buildings for convenience of the hospital. A small cemetery lot was also reserved. The building cost \$14,842.34 and was paid for from money collected from American seamen. This was the first general hospital erected in Boston and the first patient was admitted January 1, 1804.”



## Chapter 3:

### MADISON'S MEDICINE CHEST

1809-1830

Soon after his inauguration President James Madison deliberately shed from his shoulders the problem of conducting Marine Hospitals and the Marine Hospital Funds. He did it by having the regulations changed so as to put this duty entirely into the hands of the collectors of the various ports.

This no doubt was due to the fact that he had been immediately confronted with an irritating crisis at the port of Boston. He had to decide what to do about the head of the Boston Marine Hospital, Dr. Benjamin Waterhouse, the friend of the two immediate past presidents of the United States.

However, while distributing his cabinet posts on a geographical basis, President Madison had appointed as his Secretary of War Dr. William Eustis, a Boston physician, one of the principal home-city enemies of Dr. Waterhouse.

Dr. Eustis had been, in fact, chairman of the committee of the Massachusetts Medical Society which had brought in an adverse report on Dr. Waterhouse after the investigation of the controversy over who was to blame for real smallpox being rife at Marblehead. The report had included this statement:

"The assertion of Dr. W. that he was pursuing vaccination as a public benefit, and not for personal profit, does not accord with a notorious fact, viz. that until the virus had been received from Europe through other channels, he kept the matter in his own hands, excepting that it was imparted to those, who were ready to give him bonds for a pecuniary remuneration, proportionable to the profits of the business."

In other words, Dr. Eustis was a leader among those who brought a monopoly charge against Dr. Waterhouse.

In his new position of a man of power in Washington, Dr. Eustis, who was one of those who had protested to President Jefferson against the appointment of Dr. Waterhouse to the Boston Marine Hospital post, was now grimly determined that he must be ousted from it. The political situation at Boston had changed enough to make this possible. One of Jefferson's last official acts had been to appoint his own Secretary of War, General Henry Dearborn, as the new Collector of Customs at the Boston port, succeeding General Lincoln. Before the Revolutionary War, General Dearborn had been a practicing physician at what then was Portsmouth,

Massachusetts, and later became Portsmouth, Maine, when Maine was organized into a State.

At the instigation of Secretary Eustis, charges of nepotism were brought against Dr. Waterhouse and were sent to the Secretary of the Treasury by the Collector of Customs of the Boston port. The defense that Waterhouse made against these charges also was sent to the Secretary of the Treasury by General Dearborn.

On June 30, 1809, records at the National Archives show, Secretary of the Treasury, Albert Gallatin, sent to Dearborn this letter, marked "Private":

"Sir:

The President has duly considered Dr. Waterhouse's defence and your report on the charges brought against him. Some of these are acknowledged, and of such nature as render it inconsistent with the general principles, proper to be maintained by the government, to permit him to remain in his present station of Physician to the Marine Hospital. Yet it is believed that he was useful in improving the internal arrangements of the hospital, and that the disgrace which might attach to a removal, would, together with its effect on his professional character & on his standing at the university, be a more rigorous punishment than his offense deserves. It is therefore intended to give him an opportunity to resign; and the President requests that you would intimate this to him. If he declines, a removal must take place."

One of the charges brought against Dr. Waterhouse was that he had added to family finances by appointing his wife as directress of the hospital. He contended that it was managed better than before and at less expense. When he refused to resign, the family situation was made the basis for his dismissal. It was ordered on July 18, 1809, in a letter from Secretary Gallatin to Collector Dearborn as follows:

"Sir:

Your letter of the 11th instant has been laid before the President who, as Dr. Waterhouse had not thought proper to avail himself of the indulgence offered him, directs that he be immediately removed from the office of the Physician of the Marine Hospital at Charlestown.

"Without entering into other details, I will only state that his having supplied his own family with provisions which have been charged to the hospital, and his having allowed compensation to his wife under another than her present name, rendered it impracticable to contain him in the Public Service."

Collector Dearborn received this letter July 25. That same day he wrote Dr. Waterhouse "the President directs that you be immediately removed." He asked him "please to cause to be delivered to the Steward



of said hospital all public properties that you or Mrs. Waterhouse may have in possession appertaining to said hospital."

Dr. Waterhouse later made a written charge that Secretary of War Eustis was the power motivating his dismissal. He presented it May 8, 1813, on an application for another government job. He included with his application a petition in his behalf, signed by sixteen citizens, the second on the list being John Brazer.

Waterhouse wrote: "It gave me pleasure to see John Brazer, and 2 or 3 others signing this paper; for you may remember his and their zeal in removing me from the Hospital. Brazer was the chairman of the committee collected to my certain knowledge by Dr. Eustis. But Mr. Brazer has told me & others, that he acted in that business from misrepresentation; and he has done every thing in his power to show his friendship & has constantly declared that I was very unfairly treated from the first to the last of that business."

This paper is now the property of the National Library of Medicine.

All references made from Washington to Dr. Waterhouse during the dismissal proceedings spoke of him as physician of the hospital, never as its director. This was in keeping with the new rules laid down in Washington, in April 1809, just one month after Madison's inauguration, for the entire Marine Hospital System so that a situation like that in Boston would not arise again.

These rules declared that a Marine Hospital was under the exclusive superintendence of the collector. He was to provide necessary rules for the admission of patients and the conduct of the hospital.

It must have occurred to Secretary Gallatin as he formulated the letter that this was a peculiar way to run a hospital. For he added that he "presumed it would always be found desirable to give to the physician such control over the 'House,' its subordinate officers, and other details as would secure obedience to his directions, and as was the usage in other hospitals."

As a matter of fact, the new rules applied to only the two Marine Hospitals actually owned by the Federal Government, the one at Boston and the one at Norfolk. A complete financial accounting for that year, 1809, made by Secretary Gallatin, is still available in the *Medical Repository* of the year 1811. Secretary Gallatin listed the expenditures of the Marine Hospital funds in twenty ports, the total disbursed for the care of sick seamen being \$48,058.06. He named five other ports from which no accounts were received in which, expenditures, when necessary, had been authorized. Among the non-reporting five were the sizable cities of New Haven, Connecticut; Wilmington, Delaware; and Savannah, Georgia.

The 1809 expenditure at Boston was \$7,432.16; at Norfolk, \$4,298.07. In only four other large ports did the funds go to hospitals. The New York hospital received \$10,907.61; the Pennsylvania hospital in Philadelphia, \$7,592.89; the Baltimore hospital under contract with Tobias Watkins,

\$10,018.92; and the New Orleans charity hospital, to which the United States Government supplied a surgeon at \$1,000 a year in salary, a total of \$3,542.31. All the rest of the money, except \$895.34 which was paid under a special arrangement to the city treasurer of Charleston, South Carolina was disbursed by various collectors of customs among almshouses and private homes in which the sick were given care.

The entire service to sick and disabled seamen suffered from the loss of the personal interest and attention of the President of the United States. James Madison definitely was not an amateur physician, as Adams and Jefferson had been. In times of illness, he was purely a layman. By turning all responsibility over to the Collectors of Customs, he consigned the Marine Hospital Service and Fund for many years to the hazards of politics. But eventually it developed into a remarkably independent working place for curious seekers-after-facts and creative scientists.

Interestingly enough, President Madison's removal of Dr. Waterhouse appeared to have its least effect on the Boston hospital, toward which it had been directed.

President Madison chose Dr. David Townsend, a graduate of Harvard, as successor to Dr. Waterhouse. Dr. Townsend apparently took as complete charge of the hospital as Dr. Waterhouse had done before him. He even continued the custom of using it as a teaching hospital for medical students. It served as a clinical center for Harvard until the Massachusetts General Hospital was opened in 1821.

On the early haphazard conduct of the Marine Hospital Service and Fund by port collectors, Robert Straus said in his 1950 book "Medical Care for Seamen":

"Until 1838 there were never more than three Marine hospitals in operation at any one time." (He meant hospitals for merchant seamen owned and operated by the Federal Government.)

"Until the middle of the nineteenth century most of the services provided by the Marine Hospital fund were through contract with local hospitals, private physicians and boarding houses."

"There was never an efficient system for collecting the tax so that scarcely half of the amount due reached the fund."

"A clerk in the Marine Revenue Division of the Treasury was appointed to supervise and manage matters dealing with the Marine Hospital Fund, and until 1871 a single clerk constituted the only administrative organization for the fund at Washington."

There were some positive factors to counteract these negative points so succinctly sharpened up by Straus.

Many of the hospitals to which the Federal funds went furnished clinical cases for professors teaching medical students. These included the hospitals at Boston, New York, and Philadelphia. Many of the teaching physicians furnished essays on epidemics and case histories to the many medical journals of the time. Tobias Watkins who ran the Baltimore Marine

Hospital edited one of the journals. Thus the early Government-subsidized Marine Hospital System was part of the slow evolution toward modern medicine.

However, it is small wonder that in 1811, the Navy freed itself from The Act For The Relief Of Sick And Disabled Seamen in order to set up its own hospital system. England and France were at war. A broad-scale campaign was on for a bigger and better United States Navy.

In a letter to the Chairman of the Naval Committee of the House of Representatives, Secretary of the Navy Paul Hamilton complained that the Navy had derived little benefit from the Marine Hospital Fund to which it had contributed more than two-thirds of the entire amount—almost seventy-five thousand dollars—which had been collected at that time.

Said Secretary Hamilton: "As a fund for the relief of sick and disabled seamen, the secretary of the navy is required to deduct from the pay of each officer, seamen and marine, belonging to the navy, 20 cents per month, and to pay the same quarter-annually into the treasury, to be applied under the direction of the President of the United States. The amount, thus deducted and paid into the treasury, is \$55,649.29, and there is a considerable sum deducted but not yet paid into the treasury; and yet no navy officer has, and but very few of the navy seamen have, received any benefit from it."

He recommended that the portion of the fund which had been paid in by officers, seamen and marines of the Navy be deducted from the Marine Hospital Fund to become a separate Naval Hospital Fund. An act of Congress of February 26, 1811, so ordered. The amount to be transferred to the Naval Hospital Fund from the Marine Hospital Fund was set by Congress at fifty thousand dollars.

Secretary of the Navy Hamilton had elaborate plans for a Navy Hospital system at ports, and for the hospital care of Naval officers and sailors at sea. These plans were drawn up at his request by Dr. William P. C. Barton, a Philadelphia physician who had conducted successful experiments in curing sailors of scurvy, caused by a diet lacking in vitamin C, by feeding them orange, lime and lemon juice.

This was the first venture of the United States Government into the field of coping with a nutritional-deficiency disease.

Dr. Barton had acquired the cure of scurvy from British Navy officers also in the Mediterranean. In 1795, lemon juice had been made a requirement for personnel on all vessels in the British Navy.

As Secretary Hamilton was about to put the Barton plan into effect, looming war stopped everything. The transfer of fifty thousand dollars from the Marine Hospital Fund to the Navy Hospital Fund was not made. Dr. Barton's plans were published by the author in 1814 to prove he had first suggested some of the ideas later credited to other Navy officers. Perhaps it was due in part to this book that Dr. Barton became the first chief



of the Bureau of Medicine and Surgery when it was set up by the Navy thirty years later, in 1842.

On June 18, 1812, Congress, at the request of President James Madison, declared a state of war with England. The disregard of American sovereignty by the British Navy, as it sailed the high seas in the Napoleonic wars, had become so obnoxious that President Madison could stand it no longer. Madison had warned both Britain and France against attacks on and seizures of the neutral American ships. He had issued protest after protest on impressment of American sailors. France had seized ships and sailors too, but Britain was by far the worst offender.

It was a campaign year, and the re-election of President Madison was tied in with the prestige of the young nation. The President's wife, Dolley Madison, clearly foresaw that his victory at the polls in November would require an alignment between her husband and Henry Clay, Speaker of the House and leader of the War Hawks, who were vociferously in favor of raising national prestige by war. Dolley hastened and smoothed this alignment by making Clay her social protegee.

In its first months, the war went badly, both on land and on sea. So much criticism fell upon Secretary of the Navy Hamilton that it became obvious he would have to go. He was dropped from President Madison's cabinet soon after the re-election. And so was Secretary of War Eustis.

With Hamilton gone, there was no large-scale introduction of lemon-acid into the United States Navy. And the doughty Boston Marine Hospital, which took an active part in the War of 1812, had to cope with what it called "the inveterate scurvy."

The war swelled the number of patients in the Boston Marine Hospital. The exact tally is still to be seen in a rare old written volume preserved in the National Archives Building in Washington, D.C. This ledger is titled, in script:

*Prescription book  
of the  
U. S.  
Marine Hospital  
Masstts  
1816  
Vol 2*

Posted on the inside of the coverboard opposite the title page is a table headed: "A return of the Patients admitted, discharged and deceased at the Marine Hospital for the Port of Boston, Charlestown, Massachusetts, from January 1, 1810, to December 31, 1816."

The admission totals, by years, show a jump from 205 admitted during 1811, to 475 admitted in 1812. The total for 1813 was 365.

This prompted the inscribing under the statistical table of the following:



## “Remarks

“The extra number of patients in 1812 was in consequence of wounded prisoners from the British frigate *Guerriere* and great numbers of seamen from the returned public ships with the inveterate scurvy. In 1813 from the wounded of the *Chesapeake* returned from captivity. In those years extra assistance was indispensable and from the rare opportunity of acquiring practical knowledge of such cases an adequate assistance was easily available. The returns for the remaining years show the gradual increase in ordinary times.”

The capture and destruction of the *Guerriere* by the United States ship *Constitution* was the first great sea victory of the war. The *Chesapeake* was beaten, boarded and captured by the British frigate *Shannon* in the Gulf of St. Lawrence in May of 1813.

The prescription book gave the names of patients, the diseases as then known or guessed at, and remedies given. Syphilis and gonorrhea ranked high numerically among the diseases. The ailments ran the gamut of man's ills—typhus, intermittent fever, rheumatism, pneumonia, cholic, ulcer, neuritis, debility, rupture, catarrh, jaundice, diarrhea, piles, phthisis, opthalmia, and delirium tremens. Men came in with burns, frozen feet, injuries from falls, and wounds. An amputation of the thigh in consequence of a disease of the knee joint was given a special notation.

The patients were bled, purged and given emetics. They were prescribed brown mixture, pills, calomel, mineral water, aloes, nitre, opium, ipecac and dozens of other potions. Tea made from various barks were a part of the treatment of every disease of the digestive tract. If there was a place to put a blister on a pain, it was done. And aches were rubbed with volatile liniment.

The Marine Hospital thus was typical of the disease-fighting customs of the day which centered around a well-stocked medicine chest.

As early as July 20, 1790, eight years before a Federal hospital service was set up for merchant seamen, Congress passed a law that a medicine chest arranged by a reputable apothecary be placed in each American flag vessel of 150 tons and upward which was navigated by ten or more persons. In 1805, this law was extended to all foreign-bound vessels; and to vessels of more than 75 tons with crews of more than six, bound for the West Indies.

Each of the first three American books on Naval medicine were remarkably alike in several important respects. They all complained bitterly, and in much the same vein as to what this law was doing to the sea-going medicine chest. Its space was filled by apothecaries with bulky articles of trifling cost. Most costly medicines absolutely necessary for the care of the sick were likely to be lacking. When a ship put in for supplies at a small port where there was but one apothecary, the ship's surgeon had to pay him exorbitant fees. All three books counselled careful attention to the

medicine chest by the surgeon well in advance of sailing, and listed the supplies he should have on hand.

President Madison knew this country was unprepared for war. This was particularly true in the health field. The Army's system for protecting the health of the soldiers was even more inefficient than the Navy's for safeguarding the sailors. The Army had no supervising medical officer since the termination in 1800 of the services of Physician General James Craik, friend of George Washington.

The War of 1812 had gone into its second year before the office of "Physician and Surgeon General" was established by the Army staff organization act of March 3, 1813, and Dr. James Tilton, nearing seventy years of age, was appointed to that post.

Just how badly the war had gone before Dr. Tilton took over is amply documented in a 317-page book of the land campaigns of 1812, 1813, and 1814, written by Dr. James Mann, Senior Surgeon for the Army on the Frontier. He dedicated this ambitious work to Major General Dearborn, commander of this Army, who had been brought back to Washington in January 1812 from his Boston port post for active duty.

Dr. Mann summarized the Army medical situation at the start of the War of 1812 in this way: "An uninterrupted peace of thirty years had obliterated almost every vestige of military knowledge."

Army medical history should be written down, Dr. Mann maintained. And he proceeded to do so.

Disorders of the bowels in the form of dysentery and diarrhea, he said, were the most prominent diseases as the army was assembled. In July, August and September 1812, when an encampment at Greenbush, New York numbered from 1,500 to 3,000 as men moved in and out, weekly reports of the general hospital there counted between 100 and 130 ill, mostly of intestinal diseases. In November, the count went up to about 200 a week.

Early frosts of 1812 brought on attacks of acute and chronic rheumatism, mostly in men over forty years of age, he reported. He termed it "a bad policy of government" that these men, broken down by hardships and intemperance, had ever been taken into the armed forces.

Measles seized nearly one-third of the army when it was encamped at Plattsburgh and Champlain. Mann noted that on January 1, 1813, "a catarrhal affection was universal among the men." One of the remedies in most common use was the bark of various trees, boiled and served as a tea.

Dr. Mann often discussed bark as a remedy on which he was beginning to have some doubts. For the numerous cases of intermittent fevers, he said, the remedies customarily used were "emetics, opium, bark and Fowler's solution." In a case of dysentery, "very great relief was obtained by the application of a poultice of the inner bark of the slippery elm over the whole abdomen." But in some cases of fever, he said, a brew made of bark was not helpful, and might even have heightened the symptoms.

The winter of 1812-13 was marked by a deadly epidemic which

spread from the camps into civilian settlements. By some it was called "the spotted fever," by others, typhus. Dr. Mann agreed with a physician who said it was "peripneumonia notha," the most fatal and unmanageable type of pneumonia.

Dr. Mann wrote many pages about it, quoting the discussions and case histories in the medical journals of the time, posing questions that nobody could answer, describing the physical conditions revealed by the many autopsies on soldiers who had died of it. Later scholars have compared it to the deadly influenza of the First World War.

Dr. Mann was transferred to the division under General James Wilkinson and joined in the travels of the ill-fated flotilla which went across Lake Ontario and down the St. Lawrence River in 1813. This journey typified the worst health hazards of war, and brought to the attention of the whole nation the importance of the Army medical chest. It was a trip in terrible weather.

"To combat the elements was attended by more losses than to fight the enemy" Dr. Mann said. "A large proportion of the soldiers were convalescent and could but illy endure the fatigues and exposures in open boats. The weather was cold, accompanied by rain, the whole route. While on their tedious passage, attended with great hazards, many of the convalescents relapsed into former, or were seized with new diseases."

In contrast, he told of the slight military hazard of the trip.

"From Grenadier Island, the flotilla, progressing down the St. Lawrence, met with no serious obstruction from the enemy. Three hundred boats passed the batteries at Prescott, opposite Ogdensburgh, under a tremendous fire, with the loss of one man killed and two wounded."

With regard to this ill-fated journey, Dr. Mann quoted at length several other hospital surgeons, notably Dr. Joseph Lovell, active in the campaign on the Niagara frontier. He termed Dr. Lovell "one of the most able and attentive surgeons of the army" and quoted him as saying "It was impossible for the sick to be restored with nothing to subsist on but damaged bread."

Dr. Lovell was on his way to lasting fame. He would be hailed as the founder of both the permanent Army Medical Service and the Army Medical Library, which grew to be the greatest in the world and later became a part of the Public Health Service. And he would build Blair House across Pennsylvania Avenue from the White House, now the Guest House of the President of the United States.

Dr. Mann wrote about the medical supplies scattered in that journey to the well-known Dr. Benjamin Waterhouse, then out of a job. In May 1812, Harvard College finally had dismissed him for his continuing controversies with his fellow professors. Their disputes got to the point where his enemies could claim that, in his bitter attacks against them, Dr. Waterhouse was being disloyal to the college. The Harvard Corporation gave him ample opportunity to defend himself. He refused to do so.





Courtesy National Library of Medicine, PHS

Dr. Joseph Lovell, founder of both the permanent Army Medical Service, and, in the year of his death, the Army Medical Library which has become the National Library of Medicine of the Public Health Service. Dr. Lovell built as his home the residence which later became Blair House, and which is now the guest house of the Presidents of the United States.

When his arch enemy Dr. William Eustis also lost his job—that powerful position of Secretary of War—Dr. Waterhouse turned his thoughts once more toward obtaining a Federal post—this time in the Army instead of the Marine Hospital Service.

He wrote of his sorry plight to his old friend, John Adams who, in turn, wrote about it to their old friend, Dr. Benjamin Rush. Dr. Rush had



tried hard to get Dr. Waterhouse a high position in the Army. However, Dr. Rush died in mid-April 1813. On May 8 Dr. Waterhouse wrote a long letter asking to be made Physician General of the Army to General Joseph Bradley Varnum, Senator from Massachusetts, at the time President pro tempore of the Senate, and the staunchest New England supporter of President Madison and the war he had brought on.

In this letter, Dr. Waterhouse took occasion to point out to the powerful Senator the need for better medicine chests for the armed services.

"A great quantity of old & useless articles are constantly attempted to be forced into the Medicine-chests of the Army & Navy," Dr. Waterhouse wrote. "The English have those matters now under very good regulations; but we have need of great care & caution on this head. From the communication made to me by the Senior Surgeon of our army on the frontiers, Dr. Mann, I conclude that some economical regulations are needful as to the quantity, & the variety of medicine put up for each regiment."

Dr. Waterhouse, who earlier had drafted a plan for Marine Hospitals, now told the Senator how the medical department of the Army should be organized. He said he had heard that the Army was considering having a Surgeon general, but that a Physician general was what was needed "as surgery is a branch of physic and not physic of surgery." (He was, of course, applying for the job.)

"Beside, if the government appoint a Surgeon general & should afterward see occasion of appointing a Physician general, the service would possibly suffer from their disputes about rank and etiquette," he added.

Dr. Waterhouse did not get the job which he had outlined. However, President Madison apparently no longer thought it "impracticable to contain him in the public service." He was given a commission as Hospital Surgeon. There was a war on, but he continued living at home.

President Madison and his wife Dolley did not escape the ills of the War of 1812.

The President suffered from what was commonly called "intermittent fever" from early in June until the end of August of 1813. He did not really recover until he returned for a brief visit to his own home, Montpelier, in Virginia.

On June 18 he sent this note to the Senate:

"James Madison is sorry that a continuance of his indisposition will not permit him to see a committee of the Senate today, nor can he at present fix a day when it will be in his power."

On July 2, his wife Dolley wrote her kinsman Edward Coles:

"I have the happiness to assure you, my dear cousin, that Mr. Madison recovers; for the last three weeks his fever has been so slight as to permit him to take bark every hour and with good effect. It is three weeks now I have nursed him, night and day,—sometimes with despair. But now I see he will get well I feel as if I might die myself from fatigue . . ."

The war which they had sanctioned burned them out of the White House on August 24, 1814. President Madison was with the troops as the enemy approached Washington. On that day, the Capitol, the White House, and all the big buildings belonging to the Federal Government were thoroughly burned—except such walls as were fireproof—by a force under Admiral Sir George Cockburn.

Fleeing just ahead of this fire, Dolley Madison emerged a full-fledged heroine. In full charge at the White House, she had saved the state papers, as she had been told to do by her husband, having them carted off to secure hiding places in Maryland and Virginia. She had rescued from the wall the 1800 portrait of George Washington by Gilbert Stuart. And she had simultaneously written to her sister a play-by-play account of the British raid as it happened.

Not absolutely all of the White House furnishings were burned however, as a few portable items were looted. The Madison medicine chest made of walnut wood was carried away, carefully saved, and was returned a century and a quarter later.

Word that a Canadian, Archibold C. Kains, wished to restore a relic taken from the White House during the War of 1812 came in a letter to President Franklin D. Roosevelt on March 15, 1939. The letter was from his uncle, Frederic A. Delano, then Chairman of the Commission of Fine Arts. Mr. Delano was a casual and frequent visitor of the Roosevelt family, both at the White House and at Hyde Park, but at the moment he was dealing with history. He addressed his nephew with great formality: "His Excellency, The President of the United States, Washington, D.C."

The letter described Mr. Kains who Mr. Delano said "was appointed Governor of the Federal Reserve Bank of San Francisco when I was on the Reserve Board." Mr. Kains had at the time been a resident of San Francisco and a United States citizen. Mr. Delano noted that Mrs. Kains, his wife, "was a descendant of Charles Willson Peale, who was a Captain in General Washington's Army, and painted what I have always thought was the best portrait of General Washington."

Then Mr. Delano got to the gist of the request: "He wants to restore to the White House a mahogany medicine chest which apparently belonged in the White House and was carried off when the British forces raided the Capital."

President Roosevelt gave his uncle a counter-proposal, never made a part of the record, to be relayed to Mr. Kains. The White House had no curator—there was no way for any President to guarantee the permanent preservation of any such historic relic there. He therefore suggested that the medicine chest be presented for his own museum collection at the Hyde Park Library, where it would be guaranteed the continuing supervision of the National Archives. This was agreed upon.

On March 23, President Roosevelt wrote the following brief memorandum to Mr. Delano:

"That is a delightful suggestion about the medicine chest. I would suggest that Mr. Kains bring it down to the White House. He might come to tea some day and present it to us.

F. D. R."

Mr. Kains then addressed President Roosevelt directly. His letter ran in part, as follows:

20 of April, 1939  
3 Rideau Gate,  
Ottawa, Ontario,  
Canada.

"My dear Mr. President:

"A relic of the war of 1812-14 has recently come in to my hands through the death of a cousin in the shape of a small medicine chest which was looted or pillaged from the White House by my grandfather who was paymaster of the Devastation one of the boats that sailed up the Patuxent at that time and as it is my desire to return it I am now bringing it back.

"I was for many years an American citizen and a Democrat and in 1914 in San Francisco I was made Governor of the Federal Reserve Bank in district N. 12.

"About 13 years ago being 60 years of age I retired and returned to my native country and repatriated myself and of late years have watched with great sympathy your efforts in the direction of getting the desirable things of life distributed more widely among the people . . .

"I hope you will find an appropriate resting place for this little relic and should be very pleased if you gave it shelter in your own home.—and Believe me

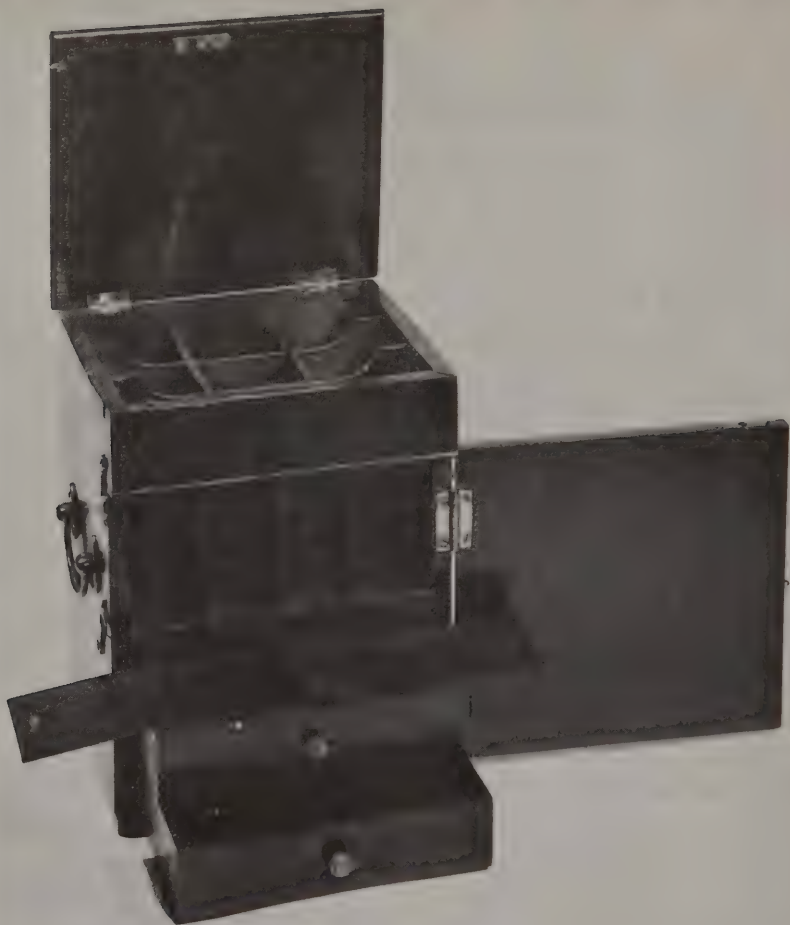
With profound respect  
Yours Faithfully  
(s) Arch. C. Kains."

His Excellency  
The President  
Washington.

The medicine chest was presented to President Roosevelt, entirely without publicity at the request of the donor, at a small family tea on April 25, 1939. Accompanying Mr. Kains who rode down, by automobile from Canada, were his wife and her brother.

When the chest reached the Hyde Park Library, Herman Kahn, then the librarian, noted that only one medical item still remained in it. It was bark, very old bark. Mr. Kahn thought it probably was hemlock bark.

Could it just possibly have been what was left of the supply of bark used by Dolley Madison to tone up her husband after his attack of intermittent fever in 1813?



Courtesy of Mrs. John F. Kennedy, The White House, Washington, D.C.

President James Madison's medicine chest can be regarded as the symbol of this nation's medical service on land and on sea in the early 1800's. When the White House was looted and burned by the British on August 24, 1814, a British naval officer, the paymaster of the invading ship, *Devastation*, took this medicine chest from land to sea. One of his descendants, who had married a descendant of the American artist, Charles Willson Peale, returned it to the White House in the Franklin D. Roosevelt Administration.

The Madison medicine chest was displayed at Hyde Park until Mrs. John F. Kennedy entered the White House with her plan of making its furnishings really historic. At her request Congress passed a law in Sep-



tember 1961, constituting the White House and its grounds a national monument, to be preserved as a museum. Curators were to be furnished continuously by Smithsonian Institution. Presidents were authorized to send to Smithsonian for safe keeping any historic furnishings they did not care to use, and to get from Smithsonian any that were in storage.

The hazard that had barred the return of the Madison medicine chest to the White House in the Franklin D. Roosevelt Administration was thus removed by Mrs. Kennedy. The Archives sent her information on it, and at her request it was returned to the White House. There it is today, on indefinite loan. President Kennedy took such a fancy to it he had it put into the President's Dining Room which was constructed by the Kennedys on the family floor. President and Mrs. Lyndon Baines Johnson left it in that spot.

Those who view its quaint compartments can visualize the late 1700's and early 1800's when well-stocked medicine chests were at the very heart of keeping a healthy ship, a healthy army camp, and a healthy home.

President James Monroe evidenced no more interest in Marine Hospitals than President Madison. Monroe's Secretary of the Treasury, William H. Crawford, issued orders in 1821 excluding from the Marine Hospitals all seamen who had incurable diseases, and limiting to four months the term a patient could stay in a Marine Hospital. He prohibited any port from spending any more money from the Marine Hospital Fund than was collected there.

President John Quincy Adams, however, secured a new Marine Hospital for his home port of Boston. In April 1825, one month after he became President, the Boston Marine Hospital at Charlestown was sold to the Navy. For hospital and grounds, the Navy paid \$12,875. The building was razed. Officers quarters that were built on the old foundation still survive. The patients of the old Marine Hospital were moved into a rented building in Charlestown until a new Marine Hospital could be built. A site was purchased in nearby Chelsea at \$4,035 in 1826. There a hospital costing \$27,603.39 was erected in 1827.

A landscape of the Chelsea Marine Hospital was painted by a primitive artist, Ann Little. A woodcut of this hospital was published in May 1837 by a Boston magazine titled: *The American Magazine of Useful and Entertaining Knowledge*. Both the primitive painting and a copy of the 1837 magazine article are now at the National Library of Medicine in Bethesda, Maryland.



Courtesy National Library of Medicine, PHS

This primitive painting of the United States Marine Hospital at Chelsea, Massachusetts, by Ann Little, is now in the National Library of Medicine.

## Chapter 4:

### BY LAND AND SEA MARINE HOSPITALS GO WEST 1830-1860

Andrew Jackson, of Tennessee, first President from the West, surged into office in 1829 on a wave of popular acclaim. The outcry was, "To the victors belong the spoils!" The hinterlands began to campaign for the rights of which they had considered themselves deprived. The Marine Hospital Fund had operated chiefly in the seaboard States and at New Orleans. Now the West wanted hospitals for its seamen too.

"About 1830 a strong movement for the establishment of Marine Hospitals began and continued for some twenty years," recorded Alba M. Edwards in a 1907 monograph, *The Marine Hospital Service in the United States*.

"During this time Congress was besieged with petitions and memorials for the establishment of Marine Hospitals. Many of these were from the State Legislatures and cities of the interior, and asked for the erection of Marine Hospitals along the Mississippi and Ohio Rivers and along the Great Lakes."

The demands for Marine Hospitals on the Mid-Western rivers and lakes became more strident because of the cholera epidemics of 1832 and 1834. A detailed description of such widespread scourges is necessary to an understanding of the political pressures they exerted toward better public health regulation.

Asiatic cholera, one of the great plagues of the Middle Ages in Europe, first visited the United States in 1832. The dramatic way in which this disease hit North America has been told by many authors, among them J. S. Chambers, M.D., in his 1938 book, *The Conquest of Cholera*.

Cholera, which started in India in the spring of 1826 and spread into Russia in 1830 was "carried to the four winds," Chambers said, by the thousands of Mohammedans who made the pilgrimage to Mecca in the spring of 1831. That year it raged throughout Europe. In 1832, cholera was carried across the Atlantic Ocean on the great wave of emigration from Ireland to both Canada and the United States. Canada that year was offering many inducements to immigrants. The ships that were taking them across the Atlantic were overcrowded and filthy. Many on board caught the cholera, speedily died, and were buried at sea.

Others carried the disease on to Quebec and Montreal. From there it went on down New York waterways to Albany. It traversed the Erie Canal, and permeated the back country.

By June 11, in Quebec, the Board of Health was announcing thirty-four deaths within forty-eight hours. By June 15, there were between three and four hundred new cases a day in both Montreal and Quebec, and the deaths were about half that number. Those attacked usually died within six hours. The mortality in Paris was three hundred per day for a population of 900,000. The rate in Montreal was nine times greater than in Paris.

New York City health records for April, May, and June 1832 were destroyed. Later research strongly indicated this was deliberately done to conceal the fact that Irish immigrants brought cholera to that port in April and thereafter, and that the Board of Health refused to concede the presence of that dread disease. Physicians in New York were still quarreling in July about whether or not it was there, and what its death toll was.

Philadelphia, which had experience in many yellow fever epidemics, took a different approach. That city sent three outstanding physicians to Canada to study the disease. They returned to launch a city-wide cleanliness campaign for which \$50,000 was appropriated. Every street, alley, and lane was flushed with water pumped in by steam engine from the Schuylkill River.

On July 11, a periodical of information to the public sponsored by physicians, *The Cholera Gazette*, was published. It was a careful compendium of the best medical knowledge of the time from all countries on this disease, sponsored by professors of the University of Pennsylvania Medical College.

The first issue stated there had been but one known fatal case in Philadelphia, but carried this warning: "That cholera will however, be epidemic here this summer there appears little reason to doubt." It urged the revision of quarantine laws; a "sanitive code carried into effect by effective agents," and, above all, avoidance of panic.

The disease took hold slowly, but it eventually struck hard in the Arch Street prison. Thirteen physicians took charge and the prison was emptied of all but the sick and the dead.

Before the year had ended, the Philadelphia publication had built up into a book of 252 pages, which concluded with an analysis of the success that city had in escaping the worst ravages of the disease. The final point made was:

"That a well-regulated sanitary police, and public measures of hygienic character, having in view the preservation of cleanliness, the prevention of a crowded population, and the procurement of free ventilation are the most efficient means of guarding the community against a very extensive and destructive prevalence of the disease."

Late in June of 1832, trouble with the Sac and Fox Indian tribes threatened in Illinois and Wisconsin. Troops from the east were moved by water through New York and Albany and were sent west through the Erie Canal to Buffalo and then on to Chicago. Cholera broke out on two of the boats enroute from Buffalo to Chicago. The troops were



debarked and put into camp near Detroit. Nearly four hundred cases of cholera developed with eighty-eight deaths. Some of the men from the cholera-stricken boats were cared for at Mackinac Hospital where, a decade before, Dr. William Beaumont had been making his studies of the physiology of the stomach, encouraged by Dr. Joseph Lovell, Surgeon General of the Army.

The Army epidemic of cholera was one more hard blow for Dr. Lovell. The Jackson administration had not proven easy for him. In 1830, Secretary of War John Eaton had tried to get the office of Surgeon General of the Army abolished. Dr. Lovell wrote to Congress a defense of his service which not only saved his own job, but got him more surgeons. But Indian wars arose, and he had to ask for still more medical officers. He had the anxieties of an ailing wife and of a family of eleven children. He had won a few extra medical officers for the Seminole War of 1835. He died October 17, 1836, at the age of forty-eight. His wife died shortly before he did.

During his eighteen years as Surgeon General of the Army, Dr. Lovell had subscribed to the leading medical magazines and had bought the best medical books for the guidance of his own staff and to send on a loan basis to the surgeons at all the Army posts. The year he died, determined to enlarge this service and make it official, he included in his budget the item: "Books for Office \$150."

This Federal expenditure for books is regarded as the start of the Library of the Office of the Surgeon General of the Army, later to become the world-renowned National Library of Medicine, with Dr. Lovell as its founder. The year of Dr. Lovell's death is cited by the National Library of Medicine as its beginning. A marble engraving at its entrance reads:

#### "NATIONAL LIBRARY OF MEDICINE

Founded in 1836 as the Library of the Surgeon General's Office, United States Army. Developed as a national resource under the leadership of John Shaw Billings, Librarian from 1865 to 1895. Named Army Medical Library in 1922, and Armed Forces Medical Library in 1952. Made a part of the Public Health Service of the Department of Health, Education, and Welfare in 1956. Established on this site in 1961, the one hundred and twenty-fifth anniversary of its founding."

As the cholera which had come from Asia approached the Ohio Valley a remarkable pioneer physician, Dr. Daniel Drake, of Cincinnati, met it with a personal campaign as intelligently carried out as the community effort of Philadelphia. Dr. Drake was a graduate of the University of Pennsylvania College of Medicine which guided the Philadelphia campaign. He made himself an authority on cholera. He wrote a 180-page book titled: *A Practical Treatise on the History, Prevention and Treatment of Epidemic Cholera, Designed Both for the Profession and the People*. It was published in Cincinnati in July of 1832 by Cory and Fairbank.

In this book Dr. Drake urged the people of Ohio not to try to isolate themselves from the cholera, but to face it with courage and cleanliness.

"Look at the example of New York. Did not her legislature and people exert their utmost power to confine the pestilence to the shores of the St. Lawrence? And has it not already settled over the valley of the Hudson?" he said. "Did not the disease appear in her Capital, and disperse the very Assembly which the day before had sent out a decree against its approach! These are facts which should instruct us. They display the utter fruitlessness of all restrictions on the social and commercial intercourse of society, and call loudly on us to prepare for what we cannot avert.

"The first duty of the municipal power, in every town, then is to remove all kinds of filth, and perfectly to ventilate every spot in which it has been accumulated. The means of effecting this purification, must necessarily vary in different places; but however diversified, they should be applied with promptness and energy, and directed to the actual removal of the nuisance—not to covering it up, and decomposing it."

Dr. Drake devoted nine pages to discussion of why he did not consider that cholera was caused by any of the six hypotheses popular at that time—the sol-lunar, cometary, geological, miasmatic, meteoratic, and contagious theories. He devoted seventeen pages to proving what he called the "animalcular hypothesis."

All the peculiar aspects of the cholera contagion, such as striking only one side of a street, and only one member of a large family, could be logically explained if the disease were caused by invisible animal life, Dr. Drake contended.

Dr. Drake appeared before the City Council of Cincinnati and convinced the members that if the powerful monarchies of Europe had not been able to close out cholera with cordons of soldiers, neither could Cincinnati. He sent to Ohio and to Kentucky newspaper articles telling towns and housewives how to wage a cleanliness campaign. He inserted a treatise on how to give early treatment to a cholera patient as an extra page in the *Cincinnati Chronicle* and in other papers so that it could be taken out and put up as a poster.

The 1832 cholera epidemic was marked by the introduction in New York of what Dr. Chambers, historian, called "one of the most rational and successful modern treatments of cholera—the injection of fluid into the vein."

In 1833 cholera again appeared in New Orleans, Louisiana, and Natchez, Mississippi. From Natchez, it spread through the South. At Vicksburg, sixty-five miles above Natchez on the Mississippi, a wedding was set for May 7, 1833. On the morning of that day, the bride-to-be, her two sisters, and the groom were all stricken. That night it was necessary to change the scheduled wedding banquet into funeral services for the four of them.

The demand for stricter quarantine made in many places during the

1833 cholera epidemic resulted in legislation by Congress permitting the use of revenue cutters in enforcing the quarantine laws of States and cities.

After the cholera scourge of the Great Lakes and Ohio and Mississippi Rivers, scores of petitions from cities and States along the banks, demanding marine hospitals for those who manned vessels of the inland waters, descended upon Congress. The April 1, 1836 resolution of the General Assembly of Dr. Drake's home State of Ohio was typical. Based on the findings of a medical committee headed by Dr. Daniel Drake himself, this document asked for establishment of new hospitals at fourteen cities, and Federal subsidies for the care of seamen at hospitals already built in other lake and river ports.

The report embodied in the resolution estimated that lake navigation totalled 1,000 miles and river navigation totalled 6,000, an aggregate of 7,000 miles. The voyages were said to take men to climates unhealthy to them. The river banks were said to send forth "insalubrious exhalations."

"Nothing is more common than for two out of the five hands who generally manage one of these boats to die; and it has even happened that the whole have perished, and the boat with its cargo been deserted, to be lost," the resolution said.

A grand total of 43,000 seamen was estimated for the Mississippi River and Great Lakes "more than two-thirds of the number engaged in the maritime commerce of the Union." Estimate for sea-going and coastwise commerce was 63,000 hands.

The Ohio report said it was not the province of that State to choose sites. But it "ventured to indicate" as places where hospitals definitely were wanted the following places: New Orleans, Natchez, Memphis, St. Louis, Louisville, Cincinnati, Pittsburgh, Buffalo, Cleveland and Detroit. To these were added Chico, near the mouth of the Arkansas; Trinity, near the junction of the Ohio and the Mississippi Rivers; Evansville, fairly close to the mouth of the Wabash; and Parkersburg or Guyandotte in West Virginia.

"With such, or even a less number, no sick person on board a steamboat or schooner would suffer longer than one or two days before he could be lodged in a hospital," this report said, "and those who descended our rivers in flatboats would not, in general, be more than two or three days without being able to command requisite medical advice."

Dr. Drake and other physicians conducting this campaign, many of them college professors, undoubtedly also had in mind the advantage of Federally-built and operated hospitals as valuable places to train physicians and educate for health. They knew they would never have a better argument than that presented by the cholera epidemics.

The report set forth: "That the location, erection, and support of these hospitals properly and constitutionally belongs to the General Government. That it is strictly National. That the trade which it is designed to cherish is not only a part of the coasting but of the foreign trade of the



United States; and that it is entitled to the same fostering care of the Federal Government as that of the Atlantic States for which similar provision has been already made."

It definitely was a political pressure document. Copies were sent to the President, the Vice-President, members of Congress, heads of Departments, Governors of all the States in the Union, and the press.

Bowing to an avalanche of such political pressure, Congress passed an Act authorizing the Secretary of War to appoint a Board of Medical Officers of the Army to select and purchase sites for Marine Hospitals on the Mississippi and Ohio Rivers and on Lake Erie. It was signed by President Andrew Jackson on March 3, 1837, his very last full day in office.

Nine Presidents lived in the White House between 1830 and 1860. Jackson was the only one of them who had enough political power to stay there eight full years. His was a personal triumph, achieved in spite of active tuberculosis. He almost died from one hemorrhage which occurred in the White House on November 27, 1836, while the campaign for Western marine hospitals was at its height. He was a man who had braved the surgeon's knife in 1832 for the removal of a bullet from his arm, a wound he had received in a duel in 1806. No doubt the old campaigner was pleased to sign a law for suffering humanity as one of his last official acts.

The March 1837 Act provided for a board of Army surgeons to select and purchase sites for the new marine hospitals. Named to this board by the Secretary of War were Surgeon B. F. Harney and Assistant Surgeons H. L. Heiskell and J. M. Cuyler. They met at Baton Rouge, Louisiana, June 18, 1837, where they were instructed by Surgeon General Thomas Lawson to execute contracts for the deeds, subject to the approval of the Secretary of War. In November of that year they reported on the sites they had selected, ranging in size from eight to eighteen acres. They were located at the ports of Natchez, Mississippi; Napoleon, Arkansas; St. Louis, Missouri; Paducah and Louisville, Kentucky; Wheeling in West Virginia; and Cleveland, Ohio.

In that same month of November 1837, this same Army Board recommended to Secretary of the Treasury Levi Woodbury that the architectural plan drafted by Robert Mills, famous protégé of Thomas Jefferson, be used for the hospital at New Orleans for which Congress had appropriated \$70,000 in the same bill in which it had approved the seven new Marine Hospitals. After thirty-seven years of talking about a marine hospital for New Orleans, Congress had voted to start building—but the site selected was across the Mississippi River from the city, at McDonaghville. Construction was started in 1838 and was not completed until 1849—at a cost of \$122,772.

Robert Mills designed for New Orleans an impressive building, 200 feet long, 80 feet wide, 55 feet from foundation to eaves. It had two floors,





Courtesy Library of Congress

Robert Mills had essentially the same design for the front and back facades of his hospitals. These designs were used in all climates, without material change, from 1837 until 1872. The hospital buildings that are still standing remain much that way today.

an attic, a cupola, and a “double-colonnaded piazza” as a promenade for patients.

However, its history of usefulness was short.

Shortly after the site was purchased, complaints were made to the Secretary of the Treasury that it was too close to ship yards and slaughter houses. But construction continued, with long periods of inaction, until it was opened to seamen in November 1848. It was used only until June of 1858 when the grounds were inundated by an overflow of the Mississippi River. The patients were removed to Army barracks below New Orleans. A watchman was put in charge of the building until the Civil War. It was engulfed by the river in 1866.

Congress appropriated \$10,000 toward construction of a marine hospital at Mobile, Alabama, at the same time it appropriated for New Orleans. The site selected at Mobile was found to have a faulty title and another site had to be purchased the next year. Building started at Mobile in 1839 and was completed in 1843.

Under the eight Presidents succeeding Andrew Jackson, all the hospital construction called for in the law that he signed on March 3, 1837, was gradually carried out. These Presidents were: Martin Van Buren, William Henry Harrison, who died after one month in office, John Tyler, James K. Polk, Zachary Taylor, who died after a year and four months

**D E S I G N**

**N<sup>o</sup>. 2**

**FOR A**

**MARINE HOSPITAL**

**ON THE**

**WESTERN WATERS**

**to accommodate**

**50**

**P A T I E N T S .**

P. Haas' Litho. Washington City.

Courtesy Library of Congress

All the Marine Hospitals on the Western Waters were constructed by Army engineers on standard designs drawn by Robert Mills, who had designed the Washington Monument. His *Design No. 1* was for a hospital for 100 patients. *Design No. 2*, the cover of which is shown above, was for 50 patients.

in the White House, Millard Fillmore, Franklin Pierce, and James Buchanan.

All the new marine hospitals were constructed by the Army engineers on standard plans prepared by Robert Mills, designer of the Washington Monument and many notable public buildings. These 1837 designs by Robert Mills are still on file at the Library of Congress, titled: "Design No. 1 for a Marine Hospital on the Western Waters to accommodate 100 Patients" and "Design No. 2 for a Marine Hospital on the Western Waters to accommodate 50 patients." These Mills designs continued to be used without material change, until 1872.

The slow and often inept building of the inland marine hospitals was blamed by one Secretary of the Treasury on the fact that their building had been turned over by Congress to the Secretary of War.

The site of one of these seven hospitals was changed. Pittsburgh, Pennsylvania, put in a strong counter claim for the hospital slated in 1837 for Wheeling, West Virginia, and after a long fight, won the hospital.

The report of the Secretary of the Treasury Levi Woodbury for the year 1840 showed that he appointed that year a medical board under Dr. Thomas Lawson, Surgeon General of the Army, "to inquire into the relative advantages of Pittsburgh and Wheeling as to the site for a Marine Hospital on the Upper Ohio."

This medical board went to work in July of 1840, and in September that year reported: "The conclusion that the establishment of a Marine Hospital at Pittsburgh, for the upper section of the Ohio, would benefit the greatest number of sick seamen and boatmen."

"The ground now having been thrice gone over, and every circumstance of doubt and of difficulty three times discussed, the arguments may be considered as exhausted, and the matter at issue in readiness for a final decision," the report stated. "It is to be hoped that the determination will be met with the cheerful acquiescence of all concerned."

The report pointed out that in the four years ending July 15, 1840, 170 steamboats with 4,250 hands had been built at Pittsburgh; 41 steamboats with 1,050 hands at Wheeling.

Through laws of August 29, 1842, and March 3, 1845, additional hospitals were constructed at Ocracoke, North Carolina; Key West, Florida; Chicago, Illinois; and Pensacola, Florida.

There were also many atypical marine hospitals, caring for seamen under unusual arrangements.

The Marine Hospital of Charleston, South Carolina, which had been included by Secretary of the Treasury Gallatin in his 1802 report to President Jefferson, was slowly built by the Federal Government for city ownership. Secretary Gallatin had that year, an old record says, "proposed to the City Council of Charleston that they should take charge of such sick and disabled seamen as might apply for relief at that place, for which they were to receive the hospital dues collected at their port, and \$15,000

out of the general hospital fund, for the erection of a Marine Hospital."

Charleston accepted this offer when it was renewed in 1804. In 1805, Congress assented to an act of the South Carolina Legislature which imposed a tonnage duty on all vessels entering Charleston Harbor to help meet the costs of care of sick seamen. The Federal Government took over the task of building the hospital. The first site it bought was too marshy, and it purchased a second site. When the hospital was at last completed in December 1833, according to this record, "the City Council was notified to take charge and assume the care and management as previously provided."

This report added:

"Before taking charge of the hospital, the City Council appointed a committee to examine the building, who, in their report thereon, represented that the roof leaked in several places, that the piazza floors, six in number, were so laid as to throw the water on the building instead of throwing it off, thereby keeping the walls damp to such an extent as to be conspicuous on the plastering within."

This was not the only complaint registered as to those piazzas. A letter in the National Archives, written September 20, 1834, by "John Oliver and Others" said that the keeper of the Charleston, South Carolina, Marine Hospital used all the piazzas "for his ten daughters to parade up and down to the exclusion of the sick seamen."

"We believe that the U.S. never intended that a keeper should convert the Charity into a Misses Boarding School," wrote seaman Oliver, "and we think that Mr. Jones might quarter his numerous family elsewhere."

A customary marine hospital pattern was the privately-built and owned hospital whose proprietor, under contract, took only sick seamen as patients and received his pay from the Federal Government.

A new one was started in 1833 in Apalachicola, Florida, under contract with Dr. John Gorrie. He conceived the idea of artificially cooling the air of hospitals and sick rooms with the hope of curing and preventing fever. Eventually he perfected the process of manufacturing artificial ice and was granted the first United States patent on artificial refrigeration. Florida recognized his great service to mankind by putting his statue in Statuary Hall in the United States Capitol.

As Western marine hospitals were built, criticisms of the Federal Marine Hospital Service and Fund began to appear in the public prints. One publicist, who wrote in the *Boston Medical and Surgical Journal* of December 9, 1847, under the signature "Thirty-six Years at Sea," had logical arguments.

He said that in the papers of any large city a reader would frequently observe statements for general information about the receipts of custom houses, the dividends of banks and insurance offices, the amounts of specie imported and exported, tariff receipts and other items of public and private interest.



"But there is one fund of no inconsiderable amount, paid over to custom houses, which we never find published," this veteran seagoer said.

"This is the Marine Hospital Fund, paid by sailors, who never see published, for their gratification or information, the amount this sum was increased by their hands for their support in time of need. No one knows how much it is, no one knows where it goes, or whence it comes."

He went on to explain that sailors out of New York at that time were paying \$7.40 in Federal and State taxes on wages of \$150 a year, which he termed "a sum equal to the whole amount of town, country, and State taxes imposed on citizens of our larger towns." He cited the city of Roxbury where the tax rate was only \$5.70 on every thousand dollars.

"The sailor pays his tax willingly, when he considers the comfort it will provide for him in time of sickness and disability," he wrote, "but he asks, and reasonably too, that he may get at some information with regard to the fund he is constantly establishing. Cannot this be allowed him through some public medium?"

The writer revealed that he had access to some information by stating that in Chelsea, Massachusetts, there were two hospitals for the Port of Boston, the Naval and the Marine.

"The surgeon of the Marine Hospital has a salary of \$1,000 a year, without the allowance of any assistance on the part of the Government," he said. "The surgeon of the Naval Hospital, if he be from ten to fifteen years standing in the Service, has \$2,000 and the advantage of an assistant with a salary of \$950 per year."

The Navy Hospital, he added, "rarely numbers more than ten patients daily" whereas the Marine Hospital in its last reported period "averaged more than 60 patients per day."

He cited statistics which showed wide variations in the amount of Federal funds spent per sailor in different parts of the country. He charged that the admission to marine hospitals by permits was "open to gross frauds."

"Men who never spoke a word of English, and never sailed under an American flag, may be found in our Marine Hospitals," he said.

"Runaways and deserters from foreign ships, by means of permits, come there and enjoy the bounty provided. This should not be . . .

"The whole system needs remodelling, and by means of the present resources and increasing demands in the country as our ports are multiplied on every shore, lake, and river, a splendid arrangement of hospitals might be made, which would be creditable to the nation, blessings to the sick sailor, and fine schools for the advancement of medical science."

The United States had tremendously expanded. President John Tyler negotiated with Great Britain the Ashburton Treaty which fixed the North-western boundary between Canada and the United States. He then annexed Texas by signing the bill admitting it as a State.

President James K. Polk managed the Mexican War which brought

about the annexation of all Mexican Territory lying between Texas and the Pacific Ocean. In his State of the Union Message in 1848, President Polk boasted of, and by implication took credit for, not only the 525,000 square miles that he, personally, had added, but also all that had been added by President Tyler. He even spelled out these statistics, and had the number of square miles translated into the number of acres, which he also spelled out, as follows:

"Within less than four years, the annexation of Texas to the Union has been consummated; all conflicting title to the Oregon Territory south of the forty-ninth degree of north latitude, being all that was insisted on by any of my predecessors, has been adjusted; and New Mexico and Upper California have been acquired by treaty. The area of these several territories, according to a report carefully prepared by the Commissioner of the General Land Office from the most authentic information in his possession, and which is herewith transmitted, contains one million one hundred and ninety-three thousand and sixty-one square miles, or seven hundred and sixty-three million five hundred and fifty-nine thousand and forty acres; while the area of the remaining twenty-nine States and the territory not yet organized into States east of the Rocky Mountains contains two million fifty-nine thousand and thirteen square miles, or thirteen hundred and eighteen million one hundred and twenty-six thousand and fifty-eight acres."

President Polk then pointed out that the territories acquired constituted a country more than half as large as all held by the United States before these acquisitions.

On May 7, 1847, the American Medical Association was organized in Philadelphia, Pennsylvania, to improve medical education and promote medical ethics. The AMA eventually became a powerful factor in the field of public health.

Another event of more moment later was the founding by legislative act of March 15, 1855, of the first State Board of Health in American history in Louisiana. That Board has had a continuous history down to the present day.

This Act resulted from the 1853 epidemic of yellow fever, one of the worst in the history of Louisiana. Leading physicians-sanitarians of New Orleans carried on a lively correspondence with those in Boston, Massachusetts, where Sanitarian Lemuel Shattuck had advocated a State Board of Health, but none had been established. The New Orleans City Council appointed a Sanitary Commission to study the whole problem of epidemics and to recommend measures of prevention.

"The report produced by those men was a most extraordinary accomplishment," said medical historian Dr. Ben Freedman of the Louisiana State Department of Health. "In over 500 pages they elaborated their thesis. Never before in America had the cause, spread, and control of

epidemic disease in a local area been so thoroughly analyzed. The State legislature voted the printing of 140 copies of this report."

The report was the basic guide for the Louisiana Board of Health Act of 1855.

In 1848, the Navy Department petitioned Congress to be allowed to take over the entire Marine Hospital system into the Navy Hospital system. The arguments set forth were remarkably reminiscent of some of the arguments earlier used by "Thirty-six Years at Sea." The low standards of marine physicians was cited as a main reason for such a shift. It was pointed out that physicians in charge of marine hospitals got only \$1,000 a year, whereas the Surgeon in charge of a Navy Hospital got \$2,500. It was more than intimated that the marine hospital posts were political patronage plums handed out by the Collectors of Customs.

However, not until the Boston Marine Society complained bitterly about overcrowding in the Chelsea Marine Hospital, citing it as example that the Government must immediately "be made aware of the necessity to reform" its relief to sick and disabled seamen, did Congress act. On March 3, 1849, the last day of the administration of James K. Polk, Congress authorized an investigation of marine hospitals and the Marine Hospital Fund and appropriated one thousand dollars for the expenses of the study.

One of the two men chosen to make the survey was Dr. George Bailey Loring, Physician in Charge of the Marine Hospital at Chelsea, Massachusetts, from August 15, 1843, to August 23, 1850. He studied medicine under Dr. Oliver Wendell Holmes, and at Harvard University. Before he became an M.D., he was graduated from the academic course at Harvard University, where he was a classmate of James Russell Lowell.

Chosen to collaborate with Dr. Loring was Dr. Thomas Owen Edwards, whose term as a Whig member of Congress from Ohio expired on the day the resolution was passed. He was a graduate in medicine at the University of Maryland in Baltimore, and had practiced in Lancaster, Ohio, before being elected to Congress. His service (1847-1849) was short but spectacular. Former President John Quincy Adams, stricken by apoplexy on February 23, 1848, while making a speech in the House of Representatives, had died in Dr. Edwards' arms. As Chairman of the Committee on the Patenting of Compound Medicine, Dr. Edwards had charge of the controversy between Dr. Charles T. Jackson and Dr. William T. G. Morton as to which of them discovered the use of ether as an anesthetic.

The highly critical report on marine hospitals and the Marine Hospital Fund by Drs. Loring and Edwards to William M. Meredith, Secretary of the Treasury, was not sent to the Senate until January 17, 1851, in response to a special resolution calling for it. By that time President Millard Fillmore had succeeded Zachary Taylor, and Thomas Corwin,



Secretary of the Treasury, said his attention had been called to the subject so recently he was not prepared to express any opinion on its views and recommendations.

The two investigators reported they had made a personal inspection of all marine hospitals already in operation or in process of construction; had studied the statistics and the Congressional documents on them; and had sought the advice of "many societies whose object is the welfare of seamen."

In the second paragraph of the report, they made a blanket indictment: "The fact that the whole system of marine hospitals has been hitherto almost without form and void, has rendered all satisfactory accurate investigation extremely difficult, and in many cases, utterly impossible."

They listed the costs, including site, of the hospitals they visited: New Orleans, \$110,081; Mobile, \$40,000; Key West, \$25,000; Charleston, \$28,000; Ocracoke, about \$8,500; Chelsea, \$27,603; and Norfolk, \$9,334.



Courtesy of John R. Barry, Administrative Officer PHS Hospital, Boston, Massachusetts

The Marine Hospital design that Mills made for the Western Waters was used in 1857 for the large hospital at Chelsea, Massachusetts, port of Boston, after the *Loring-Edwards Report* of 1849 complained of the overcrowding of the 1804 hospital there. That building still stands on the grounds of the Naval Hospital at Chelsea and is being used as a barracks. Above is the front view.



Their estimate for New Orleans was less than was later officially settled on as the amount actually spent.

Local institutions cared for seamen at \$3 per week at New Haven, New York, Philadelphia, Baltimore, Washington, and St. Louis. In smaller ports, they said, "the destination of the voyage decides the amount and kind of accommodation which sick and disabled seamen meet."

They said that none of the hospitals provided for by the Act of March 3, 1847, for which sites had been selected by the Medical service of the War Department, had been built. They recommended that the entire building of marine hospitals be returned to the Secretary of the Treasury.

A new hospital at Chelsea was strongly recommended. "Those wards which twenty years ago were ample in their accommodations for the necessities of the times, now become crowded to overflowing, and the adjoining corridors are necessarily converted into close, unhealthy sleeping rooms for the sick," the report said.

Drs. Loring and Edwards were eloquent in their plea for Maine, one of the foremost maritime States, which had no havens for sick seamen "the whole navigable extent of the Penobscot River."

The need for a hospital at New Bedford for whaling crews was especially stressed. They said "whale men," as distinguished from the crews of the whaling ships, were not admitted to the New England Marine Hospitals nor taxed.

The Norfolk hospital was given this praise: "At no other port on our lengthy journey have we found the same attention to the comfort of the sick and disabled seamen as at this port."

The hospital at Ocracoke, North Carolina, should have been at Wilmington which had three-fourths of the commerce, the Loring-Edwards report said. It recommended purchase of a site at Wilmington.

The two 1849 investigators brought a new and more cheerful view of the Marine Hospital at Charleston, South Carolina. They said: "It is held in a sort of co-partnership—the city keeping it in repair and governing it, while the United States Government is responsible in the event of its destruction by fire or by any other casualty." They described it as favorable in location and tasteful in embellishments. They stated it had gained by closeness to the Charleston Medical College.

"Under the charge of three professors of the college, it enjoys the benefit of the best medical and surgical skill; and its attentive steward, matron, and nurses free the mind from all apprehension for the condition and wants of the inmates," the report said.

The investigators were not at all sure the three-story hospital at Key West, with wide piazzas requiring extra help to keep clean, was either necessary or well-run. The expensive hospital at Mobile, they said, would answer all the wants of the port for many years. But they also noted: "The surgeon was in ill health, and common fame says he has 'farmed' the

establishment at less cost than his salary, a course of proceeding which must meet with most decided disapproval."

At Mobile, Drs. Loring and Edwards found the patients all crowded into the lower wards for "the convenience of the surgeon and the steward" a situation also true at the still more expensive hospital at New Orleans, which also had an absentee surgeon.

However, Drs. Loring and Edwards were among the few ever to put praise of the Marine Hospital at New Orleans, across the river at McDonoughville, into print. They saw it a few months after it was opened.

"The large expenditure in the building, the superior style of the furniture, and the airy, commodious wards indicated all that could be done by the Government in the building for the comfort of the sick," the report said.

It added that not a shrub nor a flower grew within the high wall around the hospital until Samuel J. Peters, just made Collector of Customs, had issued orders "to place the grounds in a condition of convenience and beauty corresponding with the building."

The report said the patients' care was entirely in the hands of the assistant surgeon who resided in the hospital, and that the surgeon was seldom present except in an emergency. The commission recommended that surgeons be required to make daily visits to the marine hospitals.

What Drs. Loring and Edwards recommended, as long ago as the year of the Gold Rush, 1849, was making the marine hospitals into a Public Health Service.

"The object of all our inquiries," their report said, "is to discover what course can be adopted to reduce and concentrate marine hospitals into one simple, economical, general system."

They envisaged this system as having at its head an outstanding physician. It would serve as a statistical center; as a series of clinics in which to train physicians; and as a national source for mass education in health.

"It is proposed to place it under the charge of a chief surgeon, who shall have his bureau attached to the Treasury Department," their report stated. "The regulations which are to govern the hospitals should emanate from him. The surgeons employed in the several hospitals should be responsible to him for the proper management of the institution."

"Placed on this footing there is no system of hospitals that would be more respectable and useful," said the authors.

"Laying aside, for a moment, the benefits which might thus arise to the recipients of the bounty, the amount of valuable statistics which might be gathered for the medical profession is almost unbounded. A well organized line of hospitals extending along our coast and rivers, receiving the diseases of all climates, of all influences, and of all varieties of constitution, and sending in their stores of experience to an intelligent chief surgeon, could not fail of benefitting mankind, and in forming an honorable and

important profession. That course which would bring the marine hospitals up to the standard which they should maintain, and would carry their results into the pages of science, would at the same time render them doubly useful in the work of relief for which they were founded. It is education which elevates all men to that charity which never faileth, even when the knowledge itself shall have vanished away."

The two investigators found that in the fiscal year 1848, more than 150,000 seamen paid into the fund only \$94,391.87.

"Had these men been in active service throughout the year, their taxation would have realized \$360,000," the report said. The authors contended there had not been that much unemployment and that the fund was poorly collected.

The Collector of the Port of Louisville, Kentucky, told them that his receipts had been less than Pittsburgh, Cincinnati, and St. Louis because more slaves were employed as seamen at Louisville.

"For instance, the steamer *Paytona*, of 548 tons burden, carries a crew of 55 men and returns only 17 seamen who pay hospital money," he said. "The residue, 38 in number, are slaves who are not admitted into the hospitals and do not pay."

As a matter of fact, the Marine Hospital Fund was so poorly collected and administered that it never did cover all the demands made on it. From 1804 on to the reorganization in the early 1870's, Congress made up deficits by special appropriations. By 1834, nine of them totalling \$250,000 had been made. Between 1840 and 1873, they were made annually, with but two exceptions. They varied in amount from \$12,000 to \$270,000. In all, they amounted to nearly \$5,000,000. During all this time, Congress put up 41 percent of all funds, and the seamen through their taxes the other 59 percent.

At that time, matters relating to marine hospitals were handled at the Treasury Department by a person designated as "Marine Hospital Clerk." Many historians since have implied that the entire service for the hospitalization system set up by President John Adams depended on one underling. This was far from true, as reports of the Secretaries of the Treasury show that official was really in charge and often much concerned.

As United States Marine Hospitals spread westward along inland rivers during the 1840's, they also were carried to the far-off kingdom of Hawaii by the great American whaling industry which centered in New Bedford and Nantucket, Massachusetts, and other New England harbors.

The saga of the whaling days and that great sailing industry was the book *Moby Dick* by Herman Melville.

Herman Melville himself now is cited as authority that the building occupied by the United States Marine Hospital in the 1840's, and still standing near the waterfront at Lahaina, on the island of Maui, Hawaiian Islands, was built before 1843. Melville had recorded that one of his shipmates from the *Acushnet* had died at the Lahaina Hospital in 1843.





Courtesy Harold H. Hall, Lahaina Restoration Foundation, Hawaii

The U.S. Marine Hospital at Lahaina on the island of Maui, Hawaii, built before 1843 and still standing. The Lahaina Restoration Foundation has included this hospital, long used as a residence, in its plans for a restoration of the old whaling days in an historic port which has remained much as it was in the 1840's.

This relic of a United States hospital in a long-gone foreign kingdom was brought to the attention of Surgeon General Luther L. Terry of the Public Health Service, successor to the Marine Hospital Service, by Dr. Edgar W. Norris, Medical Officer In Charge at Honolulu, in a letter written in December 1963. Dr. Norris sent to Dr. Terry with his letter an article by Harold Hall published by the Lahaina Restoration Foundation, which displayed a picture of the old hospital building as one of the historical sites proposed for restoration. Dr. Norris raised the question as to whether this hospital could indeed be a part of the history of the Service. He had also made queries of Harold Hall, chairman of the restoration project started in 1960, and of Miss Jane L. Silverman, one of the authors of the *Lahaina Historical Guide*.

A dip into the reports of the Secretaries of the Treasury showed that sailors in the far Pacific were as important to them as the sailors in Atlantic ports.

The report of Secretary of the Treasury Levi Woodbury for the year 1840 showed that he considered the \$38,556.44 expenditure for "Relief



and Protection of American Seamen" in Hawaii as much a part of his business as the \$93,913.91 paid to the Marine Hospital establishment in this country; or the \$10,020.00 paid for construction by the War Department on a new Marine Hospital at New Orleans and the \$9,744.11 on the construction of the new Marine Hospital at Mobile, Alabama. That was the very report in which Secretary Woodbury, of the Treasury Department, made the final decision for Pittsburgh, instead of Wheeling, for a Marine Hospital, on the basis of a War Department report. Obviously the Treasury Department was the ultimate authority on the whole compulsory health insurance system set up for seamen by President John Adams under the Act of 1798.

An Act of Congress of August 26, 1842, put U.S. Treasury accounting on a fiscal year, instead of a calendar year, basis. This caused John C. Spencer, then Secretary of the Treasury, to tighten up the accounting system. He put "Relief and Protection of American Seamen" under the general heading "Foreign Intercourse" along with the salaries of ministers and secretaries of legation, the salary of the dragoman to Turkey, and the compensation to a commissioner to the Sandwich Islands, then the wintering place of the American whaling fleet. This no doubt was because the money, in actuality, was spent through the consuls of the State Department.

However, Secretary Spencer made it perfectly clear that he still considered the Secretary of the Treasury the final authority on the relief and protection of American seamen by including in the 1843 *Annual Report* his complaint on the seamen's fund and his recommendation as to what should be done about it.

"The provision for the relief of sick and disabled seamen is, and for years has been, wholly inadequate to its purpose," said Secretary Spencer.

He pointed out that seamen usually were unable to share in general provisions for the destitute.

"They have contributed to the fund as the law demands and claim its benefits," continued the Secretary. "All efforts to prevent the expenditures exceeding the means have been unavailing. There is constantly a balance against the fund which is supplied by appropriations from the Treasury."

These deficiency appropriations were annually voted by Congress.

Secretary Spencer held that the sailors could not afford to pay more.

"To increase the amount demanded of them would be odious if not onerous," he added, using alliteration for emphasis.

He called attention to an Act of Congress of March 1, 1843, which had extended the law requiring contributions to the "owners of registered vessels." He raised the question as to whether the law should be extended still further "to include the owners of all vessels in the form either of monthly or yearly contributions graduated by the tonnage of the vessel."

A tonnage duty, Secretary Spencer said, "might furnish the relief which humanity as well as policy dictates should be extended to a class of

men, proverbially improvident but yet identified with the power and the property of this country."

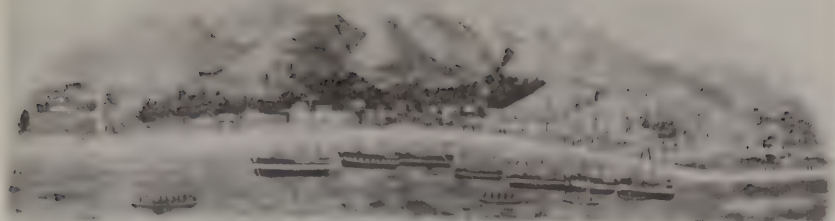
At that time, the "power and the property of this country" certainly included the great American whaling industry. It is to be remembered that all America, and England too, before the Civil War, burned whale oil lamps or spermaceti wax candles. Machinery was lubricated and soaps and paints were made with sperm oil. Whalebones were used as ribs for umbrellas as well as for the stays of women's corsets. Mrs. Abraham Lincoln's whalebone-ribbed umbrella is among the exhibits in the extensive whaling collection of Mrs. J. Seward Johnson at Princeton, New Jersey.

The medical missionaries to the Sandwich Islands usually sailed around the Horn on whale ships out of New Bedford, Massachusetts. These trips were often lengthened by weeks if the ships encountered a school of whales. The medical missionaries at the port towns of Honolulu, Lahaina, and Hilo often were called upon to doctor the seamen.

Three of them in the 1840's waged unremitting war against prostitution and disease—Dr. Gerrit Parmele Judd, who succeeded the Reverend Mr. Richards as closest advisor to King Kamehameha III; Dr. Dwight Baldwin, who lived at Lahaina and who sailed for Hawaii from New Bedford; and Dr. James William Smith, who wrote long letters of protest about the many unhealthy practices, in addition to disease and prostitution, which he blamed for the fast-diminishing Polynesian population. He told of one man suffering from severe dysentery whom he had found "filling his stomach with green apples and unripe gooseberries."

Lahaina did not have the first, or only, U.S. Marine Hospital in Hawaii. The very first hospital in Hawaii, put into operation in 1837 on the island of Oahu, was started by the United States Government for merchant seamen, according to Dr. Raymond C. Nebelung, and Robert A. G. Schmitt, who in 1948 wrote *Hawaii's Hospitals, Past, Present, and Future*. They quoted John Diell, Seamen's Chaplain, appointed by the American Seamen's Friend Society, as saying in 1838, "A convenient establishment, at Waikiki, has been rented by the U.S. Consul for the past year, for the accommodation of the seamen upon his hands . . . The situation of the sick has been far more comfortable than it was, when they were quartered in a grog shop, in the town, as was formerly the case." This hospital, the authors said, admitted 266 patients in the five year period ending March 31, 1844, of whom only ten died.

The last of the medical missionaries to the Sandwich Islands, Dr. Charles Hinckley Wetmore, sent out from Boston late in 1848 in the Twelfth and final Company of the American Board of Commissioners of Foreign Missions, was named physician and Purveyor of the United States Marine Hospital in Hilo on the island of Hawaii in August of 1855. The year before, the American Board which had financed the missionary movement to the Sandwich Islands for more than thirty years, ran so low on funds that it turned the whole venture over to the management of the



*Lahaina, Ancient Capital of Hawaii. With a Cluster of Ships Refreshing (1848).*

Courtesy Harold H. Hall, Lahaina Restoration Foundation, Hawaii

For several years the Lahaina Restoration Foundation has used on its stationery this sketch of that Hawaiian city as it looked in the 1840's. The sketch was found in New Bedford, Massachusetts, the city that sent out the whaling fleets. Now New Bedford, which has preserved many of the buildings comprising its 1840 waterfront, is also planning a restoration using the code-name **WHALE**.

Hawaiian Evangelical Association. All the Hawaiian missionaries were cut loose to earn their own way. Dr. Wetmore got a Government job.

A new law in Hawaii permitted the shipping interests to sign seamen on and off at Hilo. This added many more patients to the Hilo seamen's hospital. Dr. Wetmore was glad to take it over under an arrangement reported by his wife Lucy to her relatives on the mainland. She reported that Dr. Wetmore "will receive \$1.25 per day per man for medical attendance, medicine, and all expenses of food, washing, nursing, etc; the bills to be paid by the United States Government."

"Lahaina was the wintering ground for whalers from the '20's to the late '50's," said Dr. Francis John Halford in *9 Doctors & God*. Fifty ships at a time were common in the harbor. On some occasions, one hundred might have been in the roadsteads.

Ships that had been sailing in Alaskan waters joined those from the South Pacific in the Sandwich Islands. In *Rascals in Paradise*, the co-authors James A. Michener and A. Grove Day, said: "The trade was big business. In the year 1852, for example, the masts of 131 whale ships forested the port of Honolulu, and a man might clamber from one end of the harbor to the other across the decks of the anchored vessels." Later, these same authors said: "The death blow to the whaling trade came when the first successful oil well was drilled in Pennsylvania in 1859, and kerosene began to supplant the whale oil lamp."

*The Hawaiian Kingdom to 1854* by Ralph S. Kuykendall, a standard work on Hawaiian history, said: "Many sick and disabled seamen were discharged at Hawaiian ports; for the care of these unfortunate men the consuls were responsible, and consular expenses on this account were very large; in 1851 the American consuls at Lahaina and Honolulu expended more than \$40,000 for this purpose."



In September of 1852, J. Spalding, Secretary of the American Seamen's Friend Society, published in *The Friend* a tabulation of the amounts spent for the relief of sick and disabled seamen in all foreign ports.

The editorial comment of *The Friend* was: "The Lahaina consulate ranks highest upon the list. We have long been aware that the U.S. Hospital at Lahaina was crowded with sick and disabled seamen, discharged from the whale ships, but we were not prepared to see, that more was expended there, than at Havana, London, Liverpool, Hong Kong, Canton, Havre, Nassau, Cape Town, Lima, Cork, Talcahuana, and Acapulco combined."

Mr. Spalding said he had obtained the figures "through the courtesy of A. O. Dayton Esq., the fourth auditor." He traced the seamen's relief system all the way back to the year it started, 1798, and said that Congress had appropriated from 1798 to March 3, 1851—53 years—two million two hundred and forty thousand dollars.

For the fiscal year ending with June 1851, he gave the following items of expenditure for seamen in foreign ports: Lahaina—\$27,300; Honolulu—\$13,200; Havana—\$1,087; Valparaiso—\$15,400; Hong Kong, in 1850 and 1851—\$3,440; Liverpool—\$3,000; Canton—\$101; Havre—\$600; London—\$4,834; Nassau—\$1,100; Cape Town—\$400; Lima—\$7,500; Cork—\$400; Talcahuana—\$2,900; Acapulco—\$940.

Honolulu forged forward into the Industrial Age. But Lahaina lay almost static in the sun, silently suggesting in 1960 that it was just waiting for a restoration as an historic reminder of the old whaling port—and of the Polynesian kings and queens in power there at that time, with American missionaries as their advisers.

The Lahaina Restoration Foundation displays on its official stationery a print captioned: *Lahaina, Ancient Capital of Hawaii, With a Cluster of Ships Refreshing 1843*. The original from which the picture was made is in New Bedford, Massachusetts, and was used to advertise New Bedford whalers.

It is easy to identify on this print of Lahaina in 1843 the "U.S. Marine Hospital" on Front Street, looking precisely then as it does today in that same spot, a two-story building with verandahs running the length of both stories.

The Restoration Foundation is negotiating to acquire the old hospital, now occupied as a rented home, and the land on which it stands on a land exchange basis with the Bishop Estate. Research to aid in the restoration of the hospital is continuing in Honolulu. That picture is from the Russell-Purrinton panorama painting now in the old Dartmouth Historical Society Whaling Museum on Johnny Cake Hill in New Bedford, Massachusetts.

The whaling port restoration has a Polynesian flavor all its own. It consists of 31.79 acres in the heart of Lahaina. Memories of premissionary Hawaii are stirred by the beach between Front Street and Wharf Street,



hopping-off place for the surf boards developed by the Polynesians. There stands the Hauola Stone, or Healing Rock, described by Jane L. Silverman in the *Lahaina Historical Guide*, as follows:

“Off the right-hand end of the stone wall that separates Wharf Street from the ocean is a cluster of large rocks which stand above the waves. The rock that looks like a modern chair with a spacious seat and a small angular back is the healing rock, the front of which is worn hollow. Hawaiians believed that ailing people had only to sit in the seat, dangle their legs in the water, and let the waves wash over them to regain their health.”

The King's taro patch was there from the 1820's through the 1840's, and Kamehameha III demonstrated the dignity of labor by working in it himself. There stands the Banyan Tree, planted in 1873 on the fiftieth anniversary of the founding of the first Protestant Christian Mission at Lahaina.

Across Front Street is Baldwin House, built by Yankee missionary Ephraim Spalding in 1834, and occupied in 1835 by Reverend Dwight Baldwin, medical missionary. This historic home and adjoining medical dispensary, filled with many authentic antiques, is now used as headquarters by the Restoration Foundation on a twenty-five year lease. Its timbers are both native hand-hewn, and New England sawed, the latter having made the trip around Cape Horn. Its walls are lava stone and coral. The house is still owned by the Baldwin family.

Already restored on a block leading to the mountains from the wharf is the Lahaina prison with its tall wall of coral blocks, built in 1854 to shelter rowdy seamen picked up for misdemeanors or for outstaying the hour when they could get back onto their ships.

At the Lahainaluna (upper Lahaina) School on the gentle slopes behind Lahaina is the old printing office where the first newspaper west of the Rocky Mountains was printed and where various books of learning were translated and printed in Hawaiian. Dr. Gerrit P. Judd translated into Hawaiian Smith's *Anatomy* (61 pages with 19 copper plates and 58 engravings) which became the first medical work ever printed in the Hawaiian language. The anatomical illustrations for this book were done by Lahainaluna students, taught the art of copper engraving by their missionary teachers.

More impressive than any of them, dating back to 1828, and so sturdily fashioned as to need no restoration, lies the old Waihee Cemetery, recently renamed Waiola Cemetery, where the graves of Hawaiian royalty who chose Christian burial rites lie close to graves of early missionary families.

This cemetery is an amazing expression of the mingling of two completely divergent cultures. Enormous native Hawaiian tombs, sometimes joined together, cover the huge bodies of the oversized royalty bred by the Polynesians.

As Marine Hospitals expanded westward, so did State hospitals for the insane. Important to the future Public Health Service was this pioneering in behalf of the insane largely accomplished by a determined woman—Dorothea Dix, of Massachusetts.

In the year 1841, Dorothea Lynde Dix, a spinster in her late thirties who lived in Boston, agreed to teach a Sunday School class in the East Cambridge jail. She found there a number of insane people, poorly fed and mistreated, living in quarters bare and unheated. Her requests for better care for them went unheeded. Her indignation at their plight rose to the point that she set herself to the task of alleviating the wretchedness of all the neglected demented persons in the State of Massachusetts. She enlisted the help of some very able men of Massachusetts, among them Charles Sumner, Horace Mann, and Samuel Gridley Howe, the husband of Julia Ward Howe, who later wrote the *Battle Hymn of the Republic*.

In eighteen months, Dorothea Dix had visited every almshouse, workhouse, and prison in Massachusetts. She also had visited the insane who had been, as she often complained, "auctioned off like cattle at a fair" to farmers. Often they lived in outbuildings.

In her travels, she found many of the insane restrained by anklets, wristlets, straight jackets, and heavy chains. From the notes she took of the terrible situations which she observed, Miss Dix composed a memorial which Dr. Howe presented to the Massachusetts Legislature.

"I come to present the strong claim of suffering humanity," this memorial said. "I come to place before the Legislature of Massachusetts the condition of the miserable, the desolate, the outcast. I come as the advocate of the helpless, forgotten, insane and idiotic men and women; of beings sunk into a condition from which the most unconcerned would start with real horror; of beings wretched in prisons and more wretched in almshouses."

The Legislature at first branded the charges of Miss Dix sensational, slanderous, and false. When the prominent men who were her backers testified that all these charges were true, Massachusetts passed a law for additional accommodation and immediate relief for the mentally ill of Massachusetts.

Dorothea Dix then enlarged the scope of her campaign to the whole Nation. From 1844 to 1846 she traveled more than ten thousand miles, visiting eighteen State penitentiaries, three hundred jails, and five hundred almshouses. She lobbied for bills to start State hospitals for the insane in State Legislatures. Eventually, she personally helped to found thirty-two State hospitals. Sometimes she even was allowed to pick the site—and always she chose a high hilltop, often overlooking a river, close to a big city.

In 1848, Miss Dix persuaded Senator John A. Dix, of New York, not a relative of hers, to introduce a bill in Congress asking the setting aside of five million acres of public lands as Federal aid to the insane. By that



Courtesy National Library of Medicine, PHS

Dorothea Lynde Dix, crusader in behalf of the mentally ill, who from 1844 to 1846 traveled more than 10,000 miles visiting 18 State penitentiaries, 300 jails, and 500 almshouses. She personally helped to found 32 State hospitals and, in 1852, a National hospital—Saint Elizabeths Hospital in Washington, D.C., for the relief of the insane of the Army, the Navy, and the District of Columbia.

time she had traveled sixty thousand miles, and had personally visited more than nine thousand insane, feeble-minded and epileptic persons. She unsuccessfully lobbied for this bill through several sessions of Congress. A desk was set up for her use in the Library of Congress, then in the Capitol Building.

By 1852, she was lobbying also for \$100,000 to found a hospital for the relief of the insane of the Army and Navy, and of the District of Columbia. This bill was passed, and Dorothea Lynde Dix personally chose the site for Saint Elizabeths Hospital, a hilltop on the outskirts of Washington, D.C., overlooking the junction of the Potomac and East Branch, and commanding a splendid view of the Capitol. Miss Dix persuaded Thomas Blagden, the man who owned and loved it, to part with it.

Today the mental health program of the Public Health Service has one of its most important research centers there.

Following the Loring-Edwards report, regulations for the government of all the Marine Hospitals were prepared in 1852, were revised and published in 1856, and were made effective on October 25, 1856.

Another wave of deadly cholera swept Europe in 1848. Germans emigrating to America on two ships sailing from Le Havre, France, to New Orleans, Louisiana, took the disease to the United States in October and November of 1848.

The Gold Rush of 1849 carried the pandemic of Asiatic cholera across America to California. Cholera was carried by the overland wagon trains as well as by the first stage coaches and railroads, and by rich speculators as well as poor immigrants. In Cincinnati, Ohio, Dr. Daniel Drake again issued his warnings. There the death toll for fifteen summer weeks was 5,967 or 188 per 1,000 inhabitants. In St. Louis, Missouri, an estimated 4,500 to 6,000 of a population of about 70,000 died. St. Louis was an outfitting spot for the Gold Rush.

The Marine Hospital at Louisville, Kentucky, received the cholera cases coming up the river from New Orleans, Louisiana. Louisville escaped the worst ravages of the disease. That city cleaned and aired cellars, ditched and drained sewers, ponds, and swamps. On the advice of doctors, the sick were removed from the low, damp banks of the creek to higher and purer air. A single survivor of nine persons stricken with the disease in a dirty, over-crowded tenement house was removed to "the pure atmosphere of the Marine Hospital" where he recovered.

Before the 1850's had ended, Dr. John Snow, an English physician determined to solve the problem of transmission of cholera, the disease which had caused the building of marine hospitals throughout the United States, had accomplished his purpose. Dr. Snow believed cholera was communicable from person to person through a special micro-organism. He believed that this micro-organism was propagated only in the human intestinal tract, and that it was disseminated by the ingestion of excreta.



He thought that water was the chief, though not the only medium, through which cholera passed from person to person.

During the intense London epidemic of 1854, he discovered the statistical fact that of 286 fatal attacks of cholera in the South district of London, where the Southwark and Vauxhill water company supplied water charged with London faecal impurities, and the Lambeth company supplied relatively pure water, the proportion of fatal cases to each 10,000 houses was Southwark and Vauxhill 71 to Lambeth 5.

More dramatic still was the case of the Broad Street pump. There were, in 1854, five hundred fatal attacks of cholera in ten days in St. James' parish in London. Most of these deaths clustered close to Broad Street at its intersection with Cambridge Street, where a pump stood on the corner. Dr. Snow found the water of the Broad Street pump to be impure. He investigated by asking questions of the families in which eighty-three deaths had been registered in three days. Only ten of the deaths were in houses nearer to other pumps. Five of the families said they always used the Broad Street pump because they preferred its water. In three more of these cases, the deaths were of children who went to a school near the Broad Street pump. Of the deaths in the community served by the pump, sixty-one were of persons who habitually drank water from the pump.

Dr. Snow ascertained that a workhouse close by had 535 inmates, and only five cholera deaths. It had its own pump. And there was a brewery on Broad Street with seventy workmen. None of them got cholera and died. They all drank malt—no water at all.

On Sunday, September 7, 1854, the Board of Guardians of St. James' parish sat in a special meeting to consider the cholera situation. Dr. Snow appeared and asked to be heard. He presented his findings. He gave his prescription—remove the handle of the Broad Street pump. This was done the very next day. The plague of cholera was stayed.

The detective work of Dr. Snow was of significance not only to England, but to all the world. It was of most significance, perhaps, to the United States. For in its Public Health Service would arise a Snow disciple, rather remarkably named Frost, who would use Snow's work as the foundation for epidemiology, the science of treating epidemics.

The clamor for more Marine Hospitals continued, and some were built. Not surprisingly, San Francisco was chosen as the site of the handsomest of them all, built at a cost of a quarter of a million dollars at Rincon Point on the San Francisco waterfront. It stood at the corner of Harrison and Spear Streets, now close to the foundation supports of the San Francisco-Oakland Bay Bridge.

A primitive painting of that proud hospital, with Chinese laborers at work under the direction of an overseer wearing a stove-pipe hat, was purchased by the Public Health Service in January of 1951. This picture was on exhibit in a Washington, D.C., art gallery in a collection of



Courtesy National Library of Medicine, PHS

When the Public Health Service purchased in January of 1951 this primitive painting of an old Marine Hospital, it had been wrongly identified as the hospital at Chelsea, Massachusetts. Research conducted for the writing of this book positively identified it as the "magnificent structure" completed on Rincon Point in San Francisco in the year 1853 for a maximum of 700 patients at a cost of about \$250,000.

American primitives. It bore the mistaken title: "The Marine Hospital, Chelsea, Massachusetts, Showing Oriental Workers, About 1835-1840."

Letters from officials of the Public Health Service to historical authorities in Massachusetts brought replies stating that the painting bore no resemblance to Marine Hospitals at Boston, past or present. One historian commented, "It would be most unusual for Orientals to be in Boston at that period."

The painting remained in the possession of the Public Health Service, without positive identification, until this book was written. It had by then become part of the collection of the National Library of Medicine. Photographs of it were taken to San Francisco where it was positively identified as the first San Francisco Marine Hospital, "Corner Stone laid, April 7, 1852—Building Completed, December 12, 1853" according to the *City Directory* of 1854.

Curator Kent I. Seavey, of the California Historical Society, 2090 Jackson Street, San Francisco, found two positive proofs of this identification—a collection of early San Francisco photographs in a big frame

# PUBLIC BUILDINGS - SAN FRANCISCO.



Courtesy California Historical Society

The California Historical Society cherishes this engraving of the Public Buildings in San Francisco a few years after the Gold Rush. The Marine Hospital is in the lower right-hand corner, as handsome as the Merchants Exchange directly above it.

which included the first Marine Hospital, an exact duplicate of the building in the primitive painting; and a lithograph of the early San Francisco topography with the important buildings numbered as to site. The hospital was on Site No. 27.

After a careful study, Mr. Seavey believed that he had identified the artist as Frederick A. Butman, born in Maine in 1820. In California in 1857, he became California's first painter of landscapes exclusively. The California Historical Society has two Butman paintings, one of a Chinese fishing village at Hunters Point, San Francisco, in 1859; the



other at Rincon Point showing a Chinese fishing village the same year. Mr. Seavey said these two works were very closely akin to the one owned by the Public Health Service, and could have been done about the same year, possibly in series.

At Schubert Hall, the Library of the California Historical Society, 2099 Pacific Avenue, San Francisco, Librarian James deT. Abajian also had documentary evidence. He had pictures of the Marine Hospital Building up to the time it was torn down in the late 1920's. Many of them were taken after it was leased in 1879 to the city and county of San Francisco for use as a "Sailor's Home."

In a book of the 1850's titled *The Annals of San Francisco*, the hospital was called a "magnificent structure" and "a striking ornament to the city." This account said that the mayor, on December 10, 1852, approved an ordinance which the common council had passed conveying six lots at Rincon Point to the Government of the United States for the hospital.

"This hospital has been built and will be supported by the United States, from the fees paid into the treasury by the sailors of every American vessel entering our ports," this account said. "The sum of twenty cents a month is deducted from their wages, and paid by the master of every vessel to the custom house. In return, every sick and disabled seaman reaching San Francisco is entitled to a certificate from the collector for admission to the hospital."

A detailed description of this Marine Hospital, "Commenced under the administration of President Fillmore, completed under the administration of President Pierce" is in the 1854 *Directory of San Francisco, California*. It was of brick, four stories high, with four piazzas of ornamental iron work on each side, with capacity for 500 patients, "and 700 might be accommodated." It contained two millions of bricks and cost about \$250,000.

The author of this description seemed to feel that even higher superlatives were called for and added:

"Note—This beautiful structure is prominent to all observers, and reflects great credit, both upon the Superintendent and Builder, the latter having used his liberal spirit and desire to give to the city of San Francisco a building not only an ornament, but so constructed that it will well compare with any hospital in the States in this respect, or in symmetry and beauty of appearance."

Thus a spectacular Marine Hospital was a part of San Francisco's glory resulting from the Gold Rush.

By the end of the 1850's the era of Marine Hospital construction on the inland waterways was over. The railroad was on its way west. There were places where rivermen and railmen met, with violence.

At Davenport, Iowa, when a Rock Island railroad bridge over the Mississippi River had been burned by rivermen, an Iowa judge decreed



it could not be rebuilt as the bridge endangered river traffic. In 1857, the Rock Island Railroad hired a lawyer, who previously had served the Illinois Central Railroad, to defend its right to the bridge. His name was Abraham Lincoln—and he won the case.

In August of 1859, Abraham Lincoln, by then famous for the Lincoln-Douglass debates, made a surprise visit to Council Bluffs, Iowa. He had been with a friend on what he called a “junketing trip through Kansas.” He was making political speeches on the slavery question.

For a little respite, and to see some land he had bought through a friend, Lincoln went by steamboat up the Mississippi River from St. Joseph, Missouri, to Council Bluffs. He intended to stay only one day there, while his steamboat crossed the river to Omaha and back.

However, he found in Council Bluffs a former Springfield, Illinois, neighbor, W. H. M. Pusey, who hired an open carriage and took Lincoln “sightseeing over our bluffs.”

Lincoln was, in fact, taken up to the highest point overlooking Omaha to peer into the railroad route to the future. That spot now is marked by a monument.

“While standing at a point looking from the extreme elevation of ‘Fairview’ at the termination of Oakland Avenue, Mr. Lincoln was shown the projected route of the Union Pacific Railroad west of the Missouri River, and was told that up the Platte River, a distance of over four hundred miles, there were but few obstructions to overcome in constructing a railroad at low grades and with few curvatures,” Mr. Pusey wrote of this historic moment.

As the party was starting down from the summit, they saw, through large field glasses, Mr. Lincoln’s boat stuck on a sandbar close to Omaha. Said Mr. Pusey to Mr. Lincoln, “Now we have you as a prisoner for two or three days. That boat will have to light up before it can get into water where it will float.”

Thereupon, a spontaneous celebration erupted. Mr. Lincoln was persuaded to make a speech that night. The *Weekly Nonpareil*, caught on its deadline, put in a notice headlined, “Hear Old Abe.” Next day on the porch at the Pacific House, Mr. Lincoln asked questions for hours of Grenville M. Dodge, just in with his party from surveying for the prospective railroad. When Lincoln was President, he fixed the eastern terminus of the Union Pacific at Council Bluffs.

The last night of his three-day stay, Mr. and Mrs. Pusey gave a reception for Mr. Lincoln, attended by hundreds. The guests did not know it, but this reception marked a real turning-point in history. The day of the river frontier with its rafts and barges and steamboats run by frontiersmen, was over. After Abraham Lincoln and the Civil War, the majority of the boatmen would be Negroes freed from Southern plantations.



## Chapter 5:

### CIVIL WAR AT HOME— SCIENTIFIC ADVANCES ABROAD 1861-1870

A little more than a month after President Abraham Lincoln was inaugurated, he had to take on the task of conducting a war to save the Union. The Civil War started April 12, 1861, with the attack of the Confederacy on Fort Sumter, South Carolina.

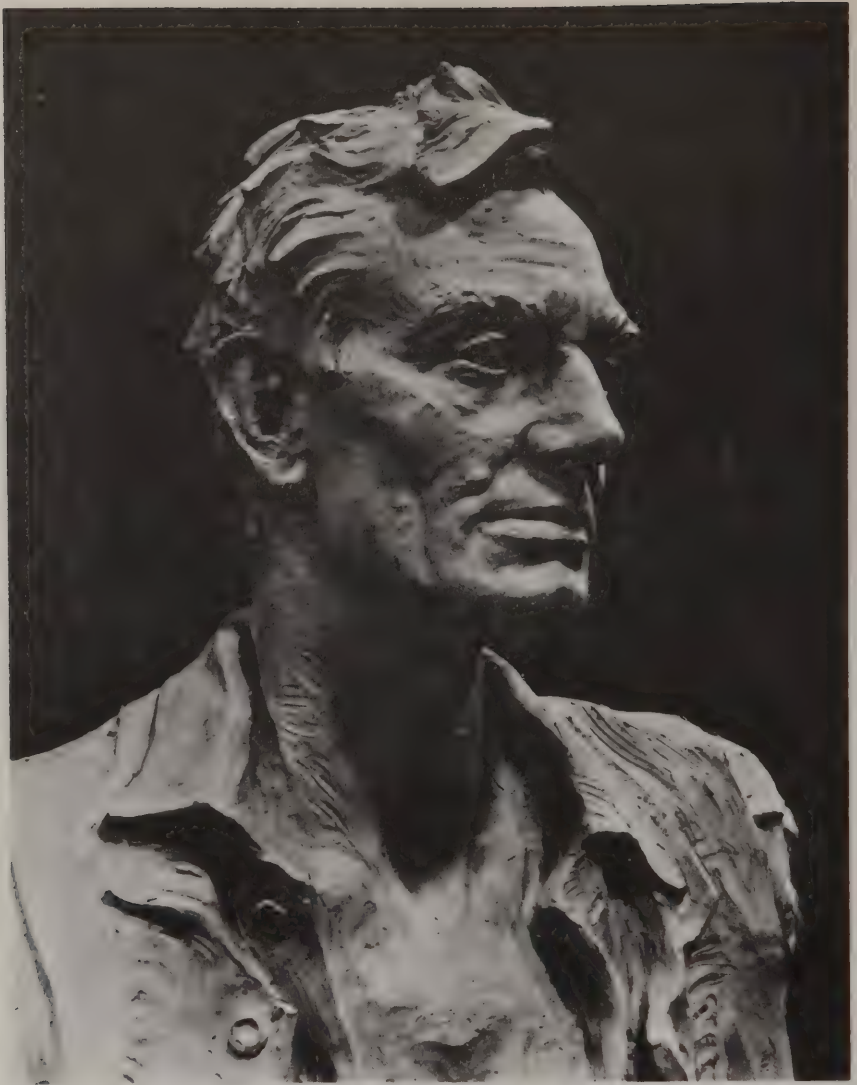
He expected it to be a short war, and asked for enlistments for only nine months. The volunteers came, regiment after regiment, overflowing Washington.

Health conditions in the volunteer regiments were chaotic. The newly-recruited troops did not consider themselves a part of the regular army. They were not subjected to army discipline. The volunteers elected their own officers, remained loyal to their own States, brought in their own doctors who themselves were not regarded as part of the regular Medical Corps. There was no one to enforce sanitation, nor to require well-cooked food and a reasonably well-balanced diet. Nor was the Medical Corps of the regular army prepared to handle a big war. It was lacking in physicians, nurses, and an ambulance corps.

This problem was of deepest concern to many people. Among them were Reverend Harry W. Bellows, Unitarian Preacher, and Dr. Elisha Harris, physician of New York City. They met on the street late in April 1861, and stopped to discuss, that first month of war, their fear that the death toll from sanitary horrors which had happened in the Crimean War would be repeated in the United States.

Men had died by thousands in the Crimea not from wounds but from dysentery and diarrhea in the unsanitary hospitals. Florence Nightingale had been the heroine of that war, reducing the death toll in the year 1855 from 427 per 1,000 in February to 107 per 1,000 in the latter part of April to 22 per 1,000 in June when the sanitary works which she had promoted were finished. Miss Nightingale set up in the hospitals a strict military pattern of nursing. She trained the nurses she took into the hospitals to prepare healthy diets for the sick and wounded men. She also secured the appointment of a Sanitary Commission for the area of the Crimean War. In her own words, this Sanitary Commission was "to proceed with full powers to Scutari and Balaclava there to purify the hospitals, ventilate the ships, and exert all that science can do to save life."

Reverend Bellows and Dr. Harris decided to call, at Cooper Union, a meeting of public spirited women to organize the United States Sanitary Commission.



Courtesy National Library of Medicine, PHS

A bust of Abraham Lincoln, President during the Civil War, by Avard T. Fairbanks, sculptor.

It had been a decade since Dr. George B. Loring, Surgeon of the U.S. Marine Hospital at Chelsea, Massachusetts, and his fellow investigator, Dr. Thomas O. Edwards had recommended a unified Marine Hospital Service as a means of gathering national statistics, feeding to "the pages of science," training physicians, and educating the public. Little had been done. However, the United States Sanitary Commission working in a war, left behind a notable record on all those fronts. In addition the U.S.





Courtesy National Library of Medicine, PHS

Pictured above is Miss Florence Nightingale, the British woman who set up a system of trained nurses on a strictly military pattern in the Crimean War; and who secured a Sanitary Commission to clean up its hospitals and ships. With her work as example, the United States Sanitary Commission was organized early in the Civil War to prevent a high death toll from diseases caused by lack of sanitation such as had happened overseas early in the Crimean War.

Sanitary Commission helped establish the nursing profession, blazed a trail for today's voluntary organizations in behalf of health, and laid the foundation for a system of National vital statistics now a province of the Public Health Service.

The call to its first organizational meeting, prepared by Rev. Bellows, was signed, so Charles J. Stillé, historian of the Commission said, "by ninety-two of the best-known and most influential ladies in New York." He recorded the call and all of its signatures. Many of these names still have meaning. Heading the list was "Mrs. General Dix" and Mrs. Hamilton Fish. Also included were Mrs. William Cullen Bryant, Mrs. H. W. Bellows, Mrs. J. F. B. Morse, "Mrs. Judge Roosevelt," Mrs. J. Auchincloss, Mrs. Peter Cooper, Mrs. R. Gracie, Mrs. W. B. Astor, and Miss Louisa Lee Schuyler.

The call was addressed: "To the Women of New York, and Especially to Those Already Engaged in Preparing Against the Time of Wounds and Sickness in the Army."

The organization created by the ladies was titled the Women's Central

Association for Relief. All of its elected officers were men. All through the war, the organized women of New York and other cities were the chief backers and money-raisers for the United States Sanitary Commission. They were also the chief promoters of women as Army nurses.

The New York group wanted nurses trained as Florence Nightingale advised. They arranged with Bellevue Hospital to enroll women in a special nursing course.

Dr. Elizabeth Blackwell, first woman graduate of an American medical school, took over the training of these nurses. She had received from Florence Nightingale in England her ideas for Army nurses. Dr. Blackwell gave about a hundred of them a month's training before they entered the war hospitals. Many served all through the war.

However, hundreds of women wanting to volunteer as nurses poured singly into Washington. On April 19, 1861, Dorothea Dix, that famous founder of insane asylums, including Saint Elizabeths in Washington, D.C., appeared at the office of the Secretary of War and offered her services. She was at once accepted to supply nurses to the many hospitals in and around Washington. In June of 1861 she became "Superintendent for Female Nurses" for the Army as a whole. Miss Dix had studied the British Sanitary Commission, and had visited the hospitals in the Crimea where Florence Nightingale had worked. She immediately began placing the nurses trained at Bellevue.

Miss Dix set up very rigid standards for volunteer nurses. In the bulletin on qualifications she laid down this rule: "No women under thirty need apply to serve in the government hospitals. All nurses are required to be plain looking women. Their dresses must be brown or black, with no bows, no curls, no jewelry, and no hoop-skirts."

But by the time of the bloody defeat at Bull Run, she was asking only one question, "Are you ready to go to work?" The work of her women nurses was by order strictly confined to the general hospitals. More and more in the crisis of battle the nurses were called further front by commanding officers. There they often found on the job women who had simply gone to work in a crisis. Clara Barton, called a "one woman relief agency" came in with a Massachusetts regiment and nursed as she chose on the battlefields without subjecting herself to the discipline of Miss Dix, who was from her home State.

Miss Dix, staid at sixty, had the complete backing of Secretary of War Edwin Stanton. She did not hesitate to confront commanders and demand changes in their hospitals. One thus confronted asked when she had gone who she was. To which a fellow officer replied: "Why man alive, don't you know her? Why she has the rank, pay, honors, and emoluments of a major general of volunteers and if you have got her down on you, you might as well have all hell after you."

Enough army officers felt the same way to succeed in having General Orders 351 sent out against her on October 29, 1863. On quick reading,

this document seemed simply to confirm her authority to approve the employment of all the women nurses through the issuance of "certificates of approval." But Miss Dix was not slow to grasp the full significance of its escape clause. It stated that women could not be hired without such approval "unless specially approved by the Surgeon-General."

"In other words," commented Miss Dix, "Surgeons who do not like me may appeal directly to the Surgeon-General and have nurses sent out to them."

Dorothea Dix did not resign.

The Civil War put trained nursing on the professional map in America. There are no exact statistics on how many women, none of course completely professionally trained, nursed in that war. One estimate was 3,200. One official order made possible the ratio of women nurses to men nurses one to two. The actual ratio averaged about one to four or five. But they came in. They were successful. And schools of nursing were soon started.

Of the women Civil War nurses, George Worthington Adams said in *Doctors in Blue*: "Their presence in hospitals was not only one of the outstanding novelties of the war, but an event in American social history. The war opened the gates of a great profession to women at a time when their economic opportunities were scarce."

And in *Doctors in Gray*, H. H. Cunningham said: "Within Confederate hospitals it was discovered that good nursing was as important as proper medical attention, and the consensus of opinion, at least among the patients, appeared to be that the best nurses were women. Some women accepted full-time employment in the military hospitals despite the prevailing taboo against their doing so, and there certainly was some relationship between these self-sacrificing women and the rise of trained nursing as a profession."

To promote the U.S. Sanitary Commission, Reverend Bellows took a persuasive delegation to Washington. They found little official enthusiasm. President Abraham Lincoln was skeptical. He said such a Sanitary Commission as they proposed might become "a fifth wheel to the coach." A political history of the Commission by William Quentin Maxwell (1956) was titled *Lincoln's Fifth Wheel*. The new Surgeon General of the Army, Dr. Clement Alexander Finley, disapproved entirely. He was won to a grudging consent to the formation of a Commission only after he had secured a promise that it would confine its operations to the volunteers and the Navy.

By the time Secretary of War Stanton appointed the nine members of the Commission on June 9, 1861, even its title had been down-graded to "A Commission of Inquiry and Advice in respect to the Sanitary Interests of the United States Forces." The members were to serve without pay, in collaboration with the War Department and its Medical Bureau.

That the Sanitary Commission triumphed in no small degree over all



opposition was due to obtaining a brilliant secretary and general manager, Frederick Law Olmsted, who was on the job every day in Washington, D.C.

Olmsted was a landscape artist with a considerable wizardry of words. As a reporter for the *New York Times* he had toured the South before the war and had presented what was widely regarded as the most accurate picture of conditions in the South during slavery. He had then become Architect in Chief and Superintendent of Central Park in New York, a project which he had so well on its way that he could resign and go to Washington, D.C.

As he campaigned for the health of the Army, Olmsted displayed the ability for accurate and powerful phrasing that he had exhibited in the *New York Times*—and some of the inspiration that he later put into many parks.

All over this country, people can go and get a lift of spirit from the beauty Frederick Law Olmsted left behind him. The grounds of the United States Capitol at Washington, D.C. The Belle Isle Park in Detroit, Michigan. The grounds of the University of California in Berkeley, and of Leland Stanford University in Palo Alto, California. Olmsted secured the setting aside of Yosemite, which later became a National Park, as a State reservation in California and served as its first president. He beautified the parks of Boston, Massachusetts, and Hartford, Connecticut. He landscaped the Biltmore estate at Ashville, North Carolina. He laid out in Jackson Park, Chicago, the grounds for the 1893 Chicago World's Fair.

Of him Daniel H. Burnham, the Chicago architect who launched the term "sky scraper" with his Montauk Building in Chicago and his Flatiron Building in New York, said: "He paints with lakes and wooded slopes; with lawns and banks and forest-covered hills; with mountainsides and ocean vessels."

During the Civil War, Olmsted was painting with large brush strokes a vista of better health for volunteers. He had the Sanitary Commission supply the vaccine necessary to protect from smallpox, and quinine as a prophylactic against malaria. Did scurvy threaten? He sent out from headquarters "Potato Circulars" and "Onion Circulars" into the areas where these esculants were in surplus. Thousands of barrels of potatoes and onions were gathered by the members of the Sanitary Commission from the farmers of the Northwest and sent to the battlefields where they were desperately needed. The Commission prepared monographs on how all the most prevalent army diseases and war injuries should be treated—fevers of various types, pneumonia, dysentery, hemorrhage, fractures, amputations and venereal diseases.

In fund-raising for disease prevention among the soldiers. Olmsted first called on the Managers of Life Insurance Companies "whose direct interest lay in fostering every well-considered scheme of a life-saving



kind." These companies gave sizeable sums, from a thousand to nine thousand dollars each, to the Sanitary Commission.

Again, he used life insurance methods in fact-gathering. Within a week after the disastrous Union defeat of Bull Run, in mid-July 1861, Olmsted had gathered, on the spot from participants, what he later presented to all members of Congress as "about two thousand items with reference to the history of the battle."

"The largest part of them were collected by physicians and examiners of life insurance companies, accustomed to an exact and searching method of inquiry," Olmsted said in his report.

This evidence showed that the troops had wasted their rations, had marched on the double-quick unnecessarily, had tossed away their arms and equipment, and had been deserted by their officers in eleven out of twenty-nine regiments under interview. In the words of the report the deserted regiments had called themselves "much scattered," "badly organized," "broken into fragments," the men being, in certain cases "left entirely to themselves."

Olmsted did not hesitate to give his own observations of the defeated Army when it arrived back in Washington, D.C.

"No pack of whining, snarling, ill-fed, vagabond street dogs in an oriental city ever more strongly produced the impression of forlorn, outcast, helpless, hopeless misery," he said. "There was no apparent organization; no officers were seen among them, seldom even a non-commissioned officer. At Willard's Hotel, however, officers swarmed."

He described the demoralized officers in the Willard bar who "since they had not a victory to boast of, made the defeat as dramatic and notable as possible."

It was, all in all, an overwhelming example of an opinion report—long before advertising agencies, big industry, the political parties, and indeed the Federal Government in many of its agencies, had made a fine and all-pervading art of the opinion poll.

The Bull Run report resulted in reforms.

The Army was re-organized under General George B. McClellan.

The Sanitary Commission "as the representative of the people in the Army" passed a resolution calling for the removal or retirement of Surgeon General Finely. Eventually he stepped down.

Olmsted set in motion another fact-finding survey to choose his successor. Inspectors of the Sanitary Commission sleuthed out Dr. William A. Hammond, at the time an Assistant Surgeon in the regular army who had been a whirlwind in organizing general hospitals at Hagerstown, Chambersburg, Baltimore, and Wheeling. Dr. Hammond was jumped over the heads of all the surgeons in the regular army. He was crammed down the throat of the Secretary of War by General McClellan, all-powerful at the time. President Abraham Lincoln appointed him because he had received petition after petition from the medical profession of the

country—all of them originally circulated by the Sanitary Commission—praising Hammond. The President said it was impossible to resist the weight of evidence in Hammond's favor. He was commissioned on April 15, 1862.

While Dr. Hammond was tied up in the details of reorganization, battles continued and Olmsted had to turn his organizing abilities to the evacuation of eight thousand sick and wounded of the Insular campaign. This was done by hospital ships, and in hospital railroad cars especially built by the Sanitary Commission for the care of the wounded, all furnished and financed by the Sanitary Commission.

In August of 1863, Olmsted accepted a position with the Mariposa Land Company of California. In addition to all the personal services he had set up for the volunteers, he had reformed the Medical Bureau. He had instituted a system of thorough medical inspection of regiments by doctors who asked 180 questions about diseases, drinking water, camp sites, cooking, and hospital accommodations. These inspectors distributed to surgeons the Commission's medical monographs, of which more than fifty thousand eventually were distributed.

William Quentin Maxwell, historian of the Sanitary Commission, credited Olmsted with having made the beginning of the Bureau of Vital Statistics, through the data he had caused to be gathered in the inspection of camps and of hospitals. Sixty physicians and surgeons under Dr. Henry G. Clark, of Boston, visited all the general hospitals and made a report of 2,500 folio pages to Surgeon General Hammond in May 1863. Camp inspections numbered 1,482 in about 870 regiments.

"The body of facts was of interest to students of anthropology, life insurance, and vital statistics," said historian Maxwell. "Printed reports had made the Sanitary Commission known to the scientific world."

He quoted Johnson's *New Universal Cyclopedia* of 1877 as saying they "probably had added more new and valuable facts to the science of vital statistics than any other contribution at any time."

The important historical and statistical papers gathered by Olmsted for the U.S. Sanitary Commission now completely fill a large basement room at the New York Public Library. The Olmsted statistics were at all times available to Dr. John Shaw Billings, Civil War Army Surgeon, who later started vital statistics work in the United States Census Bureau. In his declining years, Dr. Billings started the New York Public Library. There his own personal papers were piled high on top shelves above Olmsted's in that same basement room after Dr. Billings died.

After the departure of Olmsted for the West Coast, most of the publicity for the Sanitary Commission resulted from the Sanitary Fairs staged by the ladies. These mammoth Fairs were remarkable money-making and entertainment institutions which proved also to be potent devices for mass-education. They sold everything presented to them by merchants anxious for added advertising and by patriotic citizens. Thus they literally

made millions of dollars to promote the health of the soldiers. The first Sanitary Fair, which opened in Chicago, November 5, 1863, made \$79,000 for the Commission. The Boston Fair brought \$140,000 of which \$50,000 went into the national coffers. The Brooklyn and New York Fairs raised more than \$1,300,000.

The Albany Fair raffled off so many items that a public controversy ensued, and the Commission itself ruled against raffling. So the New York Fair, held in Union Square, promoted instead a popularity contest as to which Civil War General should get the fancy sword. General McClellan led until the last day, when General Grant forged ahead by a terrific vote of 21,849 in one day, making him win over McClellan with a score of 30,291 to 14,509.

All the fairs advertised the work of the Sanitary Commission. All displayed the works of current artists and authors. History was for sale on all sides—autographs, souvenirs, historic documents—which of course, brought in Abraham Lincoln, President of the United States.

David Mearns, Library of Congress expert on Lincoln and the Civil War, has chronicled this story. The ladies in charge of the Northwestern Fair at Chicago wrote to ask President Lincoln for the original draft of the Final Proclamation of Emancipation, signed January 1, 1863, to be auctioned off in Chicago.

"I had some desire to retain the paper," Lincoln wrote them when he sent the document, "but if it shall contribute to the relief or comfort of the soldiers, that will be better."

It brought three thousand dollars. The buyer, Thomas Barbour Bryan, presented it to Soldier's Home, which entrusted it to the Chicago Historical Society for safekeeping. There it got burned in the famous Chicago fire of 1871, after having happily been lithographed.

Taking their cue from Chicago, the sponsors of the Great Western Sanitary Fair, Cincinnati, made a request through Senator John Sherman, of Ohio, for the preliminary draft of the Emancipation Proclamation which had been dated by Lincoln "September 22, A.D. 1862."

The Cincinnati ladies were fairly well satisfied when Sherman replied that the President "very cordially met our wishes, but, as original copy has been somewhat defaced, he kindly offered to copy it himself, retaining all the marks, erasures, notes and additions."

David Mearns commented, "Mr. Lincoln had, in other words, forged himself."

Mr. Lincoln's copy of Mr. Lincoln was sold for \$150 at Cincinnati.

However, the real reason Abraham Lincoln had sent a substitute was that he already had promised the original copy of the preliminary Emancipation Proclamation to the ladies of Albany, New York.

Advertising this donation of the President of the United States, the Albany Fair said: "This Proclamation is, in the opinion of the Committee, a more historic treasure of more interest and importance even, than the



Proclamation of January 1, 1863, which was only the necessary sequence of the September Proclamation."

In Albany the Lincoln item was raffled off like everything else by the sale of tickets. It made \$1,000 for the Fair. Gerrit Smith, who held the lucky number, put it up for sale again for the soldiers through the Sanitary Commission "the faithful and tender nurse of such of them as fall in the way from wounds and sickness." It was not sold until the death of Lincoln, when the New York Legislature appropriated one thousand dollars for it, paid to Henry W. Bellows, President of the United States Sanitary Commission. It was placed in the custody of the New York State Library, and there it remains. One hundred years later, New York State started to build a shrine for it.

Lincoln personally attended the Sanitary Fair in Philadelphia, Mr. Mearns said. The Confederates had their fairs too. At the Southern Relief Fair held in Liverpool, England, a Shetland pony named "Varina Davis" for the wife of Jefferson Davis, was raffled three times adding three hundred and twenty pounds to the money there raised for Southern prisoners of war.

One of the first acts of the new Army Surgeon-General, Dr. Hammond, was to bring in Surgeon Jonathan Letterman, who was promoted from an Assistant Surgeon to Medical Director of the Army of the Potomac. Dr. Letterman organized a system of ambulance services which, according to *Doctors in Blue* "worked so well it became the model of the world's armies for the next two generations."

Another young officer brought into the Medical Bureau as Dr. Hammond took over was Dr. John Shaw Billings, who was to become a catalyst and trailblazer in the field of public health. He had been a demonstrator of anatomy at the Medical College of Ohio when the Civil War started. He turned down an opportunity to go into a surgical partnership with his preceptor in the college in order to join the Army of the Potomac as an Assistant Surgeon on April 16, 1862.

He had been at work at the Union Hotel Hospital in Georgetown only a short time when two men came into the hospital office and asked to see some of the cases. After Dr. Billings had taken them around, he learned that his callers were Army Surgeon General Hammond and Dr. Letterman.

They told him they had come to see him because of the remarkable record he had made in his medical examinations. Dr. Billings then learned for the first time why he had been required to take a six day examination when the routine was for three days. The Army register had been considered practically closed, with all candidates rated in order, when Billings first handed in his papers. But on the basis of his showing, the examiners had decided they would have to let him in. When they had examined him for three additional days, they decided they had to put him at the head





Courtesy National Library of Medicine, PHS

Dr. John Shaw Billings, who made such a high score on his examination to become an Army surgeon in the Civil War he was put in charge of setting up the Cliffburne Hospital in Washington, D.C. Highest Army medical officers came to watch his surgery. Later he became librarian and museum curator for the Army.

of the list. He had thus crowded out, for first place, a protégé of Dr. Hammond.

When all this had been explained, Dr. Hammond gave Dr. Billings

his orders: "Day after tomorrow, all the surgeons in this hospital will be relieved, which will leave you in charge. You will be sent some contract doctors, and you are to go to the cavalry barracks in Cliffburne, on the hill back of Georgetown, turning them into a hospital, and move this hospital out there as soon as possible."

That started Dr. Billings off on a hospital-building career which eventually led to his designing the Johns Hopkins Medical Hospital in Baltimore, Maryland and the Peter Bent Brigham Hospital in Boston, Massachusetts. In the Civil War he used the new pavillion plan of hospital building, a series of small-sized temporary structures then believed most healthy as they could be destroyed and new ones built when condemned for carrying diseases. But he was able to make Johns Hopkins permanent indeed—the world had by then accepted the germ theory and had learned how to kill germs.

At the Cliffburne Hospital, which had cooking facilities for 1,000 persons, Dr. Billings, assisted by fifteen Sisters of Charity as nurses, did extensive operative work on the Union and Confederate wounded of the Seven Days before Richmond. A letter he had started with a statement that he had received 200 wounded and had been operating for 24 hours steadily in boiling heat was halted by more wounded—to be continued later as follows:

"Just as I had written thus far I was interrupted by the arrival of 125 more wounded and just as I was hard at work with them, lo and behold, here come the Medical Director, Surgeon General, Chief Inspector of Hospitals, and six surgeons—to see me operate."

On August 29, 1862, Dr. Billings was transferred to the United States Army General Hospital in West Philadelphia. It was filled with thousands of sick and wounded, but there were times when for a brief while he could be with his fellow scientists. On November 30, 1862, he wrote his wife in Washington that he had remained all night with Dr. Isaac L. Hayes, of the United States Volunteers, noted Arctic explorer, at his club in Philadelphia.

"I had a very pleasant time at the club," he wrote. "All were gentlemen distinguished in science, and everyone did all he could to make it pleasant. Supper was choice, terrapin, oysters, croquets, salads, etc. and the wine was dry Verzerney and was unique—not to be bought in this country at any price whatever. . . . About 1 a.m. Dr. Hayes and myself went to his room, lit cigars, and got out his maps, chart, and MSS. and talked an hour or so altogether. I think I learned more yesterday than I ever did before on any one day in my life.

"I have bought the microscope and last night had a talk with the two best microscopists in the United States, Drs. Leidy and Lewis—and they are going to help and show me."

Joseph Leidy, famous anatomist and naturalist, was then a contract surgeon on hospital duty. Dr. Francis W. Lewis, educated abroad as an

oculist, was a surgeon at the Satarlee Military Hospital in Philadelphia during the Civil War.

This was the exciting introduction of Dr. John Shaw Billings to the scientific instrument which, during the decade of the Civil War, opened up a whole new concept of public health, safe surgery, and indeed, the whole new world of modern medicine. He was later to collect microscopes for the Army Medical Museum which now reside as a magnificent collection at the Armed Forces Institute of Pathology.

Dr. Billings returned to the Army of the Potomac on active field duty until August of 1864 when he was assigned to the Washington office of the Director of the Army of the Potomac to arrange and analyze the field reports for embodiment in *The Medical and Surgical History of the War of the Rebellion*. At the year's end, he was transferred to the Office of the Surgeon General, Dr. Joseph K. Barnes. He stayed there for more than thirty years as first Director of the present National Library of Medicine.

While the United States Sanitary Commission was putting into practice many of the ideas earlier advocated in the Loring-Edwards report, the Marine Hospital system was disappearing through official neglect and the hazards of war.

Confronted by major Civil War problems, Secretary of the Treasury Salmon P. Chase threw up his hands at the annoying but lesser problems of the Marine Hospitals. In his first annual report of June 30, 1861, he suggested that Congress call a complete halt on hospital construction and start selling or renting many of the hospitals that the Federal Government had built. The precise text of his recommendation ran:

"At present, indeed some of these hospitals are made available for the benefit of the troops, but this must necessarily be partial and temporary. Of these, therefore, as well as those not thus used, the Secretary recommends that those least advantageously situated and employed be disposed of on the most favorable terms, and that no new structures be undertaken except in cases of the clearest expediency or necessity."

That fiscal year, most of it before the war was well started, the total expenses of the Marine Hospital Fund was \$41,030.32, the total collected was \$10,391.24. The Treasury thus had a large deficit to cover.

In 1862, Secretary Chase was authorized by Congress to rent any of the Federal Marine Hospitals to the cities, towns, or counties in which they were located. That year, the Treasury Department reminded the hospital directors that they were conducting a trust fund, and told them that if they did not send in records, their funds would be cut off.

Twenty-seven Marine Hospitals were operating at United States ports as the Civil War started. The report of the United States Secretary of the Treasury for the fiscal year 1864 listed only eight.

The Northern Army used the Marine Hospitals at Cincinnati, Ohio; Burlington, Iowa; Evansville, Indiana; and Louisville, Kentucky. The



Marine Hospital which had been so long located at Norfolk was used as a Confederate barracks. At the close of the war it was turned back into a hospital for the Union troops. When they evacuated, it was never again used as a hospital.

The Confederates took over the marine hospitals in the seceding States. When the Union forces captured Vicksburg, Mississippi, they took the marine hospital being used by the Confederate Army and turned it over to the Medical Department of the United States Army. At Mobile, Alabama, the Confederates used the marine hospital as a military hospital until the 1865 surrender when it became a United States military hospital.

Evidently the war merger of the Marine Hospital with the Navy worked out well at Boston, for on October 1, 1864, all salaries were raised. That of Dr. John W. Graves was increased from \$1000 to \$1800 a year. Sixteen others—nurses, the engineer, laborers, cooks, waitresses, and laundresses received lesser raises. A later report said that the total number of Army and Navy sick and wounded cared for in the Boston Marine Hospital between 1862 and 1865 was 648.

On April 8, 1864, President Abraham Lincoln took time in the most critical year of war to sign into law a bill to benefit some especially-handicapped human beings—the deaf. That law set up the first college for the deaf, still, after more than a hundred years, the only college for the deaf in the world. The college had grown out of a local school for the deaf, started in 1857 by Amos Kendall, Postmaster General under Presidents Jackson and Van Buren, who later had accumulated a fortune as business and legal manager for Samuel F. B. Morse, inventor of the telegraph. Kendall had been made guardian of five deaf children from New York who were being exploited. He brought to Washington young Edward Miner Gallaudet, son of Thomas Hopkins Gallaudet who had started the first school in America for the deaf at Hartford, Connecticut, in 1817. Edward Miner Gallaudet had high aspirations. When he arrived in Washington, D.C., with his widowed mother as matron of his school, he intended to make it a college. Kendall gave him an ample campus, still called Kendall Green. In 1866 he went to Frederick Law Olmsted, the landscape architect, and got from him and his partners plans for buildings and grounds, which were carried out.

Abraham Lincoln accepted the role of Patron—and the name of the President of the United States still appears as Patron in its catalog. The President signs its diplomas. It is under the supervision of the Government which provides seventy percent of its support and scrutinizes its expenses—but it is not operated by the Government. Almost a century after its founding, when the time came for Gallaudet College to become the center for a hearing and speech clinic and medical research on deafness, the National Institutes of Health of the Public Health Service helped to formulate the plans.

Brilliant Surgeon General Hammond, with his many creative ideas,



had not been allowed to serve out the Civil War. Apparently from pure jealousy of a rising power, Secretary of War Stanton had Dr. Hammond court-martialed on false charges and dismissed from the Army when Hammond refused to let himself be eased out quietly. It was thirteen years before Hammond succeeded in getting his name cleared and himself reinstated by a private bill in Congress.

However, his great work went on. Dr. Barnes, his successor, who was backed by Stanton, was able to carry out all the reforms Dr. Hammond had planned for better medical care on the battlefield.

Aided by the directing drive of Dr. Billings, Surgeon General Barnes also carried to completion the three medical monuments which Hammond had envisaged as Civil War memorials—the Army Medical Museum, the *Medical and Surgical History of the War of the Rebellion*, and the large-scale development of the Library of the Surgeon General's office.

After Abraham Lincoln was shot at Ford's Theater, 513 Tenth Street, Washington, D.C., the public thought that building to be too tragic to ever be used as a theater again. Into it were moved the Army Medical Museum, the Library of the Surgeon General's office, and other oddments which meant busy and varied days for Dr. Billings. His chief interest at the time was building up the Library.

Of great aid to him in this process was a fund of about \$85,000 turned over to Surgeon General Barnes when the Army general hospitals were discontinued after the war. This fund had been built up, by the sale of soap, fat and swill. Some of it also went to improving the Army Medical Museum.

Another medical hero emerged from the Civil War. He was Dr. John Maynard Woodworth, detailed to take charge of the ambulance train of the Army during General William Tecumseh Sherman's "march to the sea." On that march, Sherman cut off the transportation rights of the Sanitary Commission which long had aided in the care of the wounded and sick. General Sherman allowed no civilians to take part in the march.

Dr. Woodworth had in his ambulance train over one hundred sick and wounded. Three of them had suffered amputation of the thigh. He reached Savannah without the loss of a man. He wrote from that experience in collaboration with Dr. Edward Andrews the pamphlet, *The Primary Surgery of General Sherman's Campaigns*. His was a dramatic medical exploit, which later counted toward his appointment to the post of first Supervising Surgeon General of the Marine Hospital Service.

All the while the Civil War was going on, scientific progress was booming in Europe.

Three men, from as many European countries, dramatically raised the curtain during the 1860-1870 decade to the curbing of disease and death to be made possible by the new science of bacteriology. They were: Louis Pasteur, of France; Dr. Joseph Lister, of Great Britain; and Dr. Robert Koch, of Germany.



Courtesy National Library of Medicine, PHS

After President Abraham Lincoln was shot at the Ford Theater, pictured above, people thought the building to be too tragic for further use as a theater or even a commercial establishment. The Government bought it. The Library and the Museum of the Office of the Surgeon General of the Army were moved into the building. Dr. Billings moved in too, as Director.

Louis Pasteur, a chemist and not a physician, had proven again and again that the old theory of spontaneous generation—that flies sprang spontaneously from putrefied flesh, that microbes were spontaneously created in certain liquids—was a myth, a complete falsity. But he continued to be challenged. On April 7, 1864, he forever ended spon-

taneous generation by staging an evening lecture at the Sorbonne before an audience which was a cross-section of Paris, including fashionable society. Among those present were such celebrities as Dumas the elder, Princess Mathilde, and George Sand.

Pasteur conducted an experiment on the platform which demonstrated that in an air-sealed flask bacterial life did not grow, whereas in those which any air penetrated, bacteria did grow.

Pasteur begged of his air-sealed flask "to reproduce for me the wonderful spectacle of the first creation."

"But it is silent, silent ever since these experiments were begun several years ago," he said. "And why? Because I have kept from it the one thing man is unable to produce, from the germs which float throughout the atmosphere, from Life, for Life is a germ, and a germ is Life. Never will the theory of spontaneous generation recover from the mortal blow of this simple experiment."

Publicly on a French farm Pasteur carried out an anthrax vaccination test. Twenty-five animals were inoculated with the anthrax vaccine he had developed. Twenty-five were not inoculated. At the next meeting all were injected with anthrax. The crowds came back to see that all the animals which had not been vaccinated died of anthrax.

The wine industry of his hometown, Arboris, asked him to come there and find out why the wine was souring. He found the ferment which caused it, and that high temperature for a few seconds would kill it without interfering with the aging of the wine.

He perceived the possibility that it might not be necessary to kill the ferments that soured wine, milk, and beer. To weaken them by heating so that they could not multiply might suffice. So came about the correctly named pasteurization of milk, wine, and beer. The name of Pasteur came into all dictionaries to signify protection against microbes by the action of heat. This led to the protection of man from contaminated food—and it continues to this day.

Among the many other scientific principles he came up with was attenuation, which means the lessening of the virulence of germs by their passage through one animal after another. This explained the safety of Jenner's cow-pox vaccine, and made possible the development of vaccines for many diseases. Eventually Pasteur himself developed a cure for hydrophobia (rabies), which he first successfully used in saving the life of Joseph Meister, a nine-year-old boy bitten by a mad dog.

Dr. Joseph Lister, a master surgeon trained by the famous Dr. James Syme of Edinburgh, whose daughter Lister married, quarreled with the theory of "hospitalism," the current belief that the disease came from hospital walls themselves after years of habitation by the sick. Lister accepted the chair of surgery in Glasgow University in 1859. There in 1861 he was put in charge of ground-floor wards in the New Surgical Hospital of Glasgow Royal Infirmary. He found that the death toll in this new



building was no lower than elsewhere. His mind mulled over such facts as: Surgery was a dirty business. Physicians did not scrub up. Instruments were not sterilized. For wounds to build up suppurations was considered natural, and indeed, beneficial.

Lister learned that his new surgical ward had been built on a cemetery site where thousands of victims of cholera had been buried in shallow graves twelve years before. He commented: "The wonder was, not that these wards on the ground floor had been unhealthy, but that they had not been absolutely pestilential." In this unhealthy environment he proved his antiseptic principle.

The clue to solving this problem came from a colleague, Thomas Anderson, Professor of Chemistry at Glasgow University. Anderson called Lister's attention to the work of Pasteur in France.

Lister learned how Pasteur had proved that fluids kept free of germs by being enclosed in sealed flasks would remain unaltered indefinitely, but that fluids exposed to dust in air would soon decompose.

Lister made his own experiment. He boiled urine in a series of flasks, some with straight necks, some with necks twisted at various angles. Dust freely entered those with straight necks and the fluid decomposed. In those with curves and angles the fluid remained germ-free.

Said Lister: "All efforts to combat decomposition of the blood in open wounds were in vain until Pasteur's researches opened a new way of combatting the microbes." He set to work to find some way to prevent entrance of germs into wounds "by applying as a dressing some material capable of destroying the life of the floating particles."

Lister worked nine years in developing methods to keep wounds germ-free before he was ready to accept his own success by writing his first letter to Pasteur—a letter of appreciation for his brilliant researches proving the germ-theory of putrefaction:

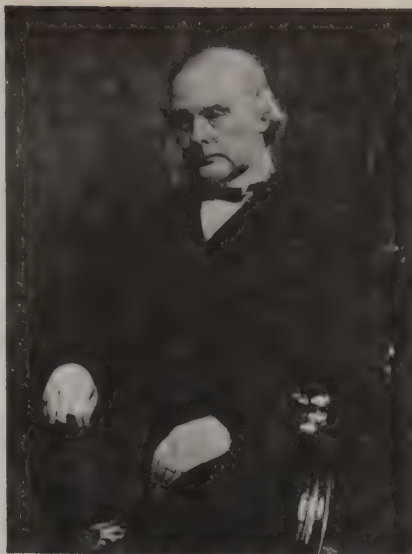
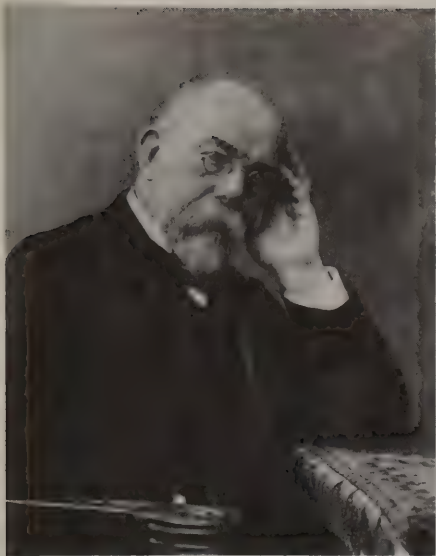
"I do not know whether the records of British Surgery ever meet your eye. If so, you will have seen from time to time notices of the antiseptic system of treatment, which I have been labouring for the last nine years to bring to perfection. Allow me to take this opportunity to tender you my most cordial thanks for having, by your brilliant researches, demonstrated to me the truth of the germ theory of putrefaction, and thus furnished me with the principle upon which alone the antiseptic system can be carried out. Should you at any time visit Edinburgh, it would, I believe, give you sincere gratification to see at our hospital how largely mankind is being benefited by your labours. I need hardly add that it would give me the highest gratification to show you how greatly surgery is indebted to you.

"Forgive the freedom with which a common love of science inspires me and

"Believe me, yours very sincerely,

"Joseph Lister."





## Dinner

in honor of His Excellency  
**Professor Robert Koch,**  
 under the auspices of the  
 German Medical Society  
 of the City of New York.

Saturday, April 11<sup>th</sup>  
 1908



The Waldorf-Astoria.

Courtesy National Library of Medicine, PHS

Research overseas during the Civil War resulted in a medical revolution for the whole world, including the United States. The science of biology was born. The three men pictured above, Koch, Lister, and Pasteur, were contributors.

Lister perfected dressings made antiseptic by germ-killing carbolic acid and sealers to guard the wound from the too-direct action of the acid. He substituted sterile catgut for silk as a suture. He developed antiseptic putty, plaster and sprays. He boiled towels, sponges, instruments, and the clothing used in the operating room. He required frequent hand-washing. The death rate went down in his wards.

Robert Koch, twenty years younger than Pasteur, was a masterly laboratory scientist. He worked out methods of inoculating mice with anthrax, and of imprisoning a drop impregnated with anthrax microbes so that he could watch them grow. He developed stains to make it possible to study the course of microbes in tissues. He "fixed" microbes so that they could be photographed by microphotography. Importantly he discovered the microorganism which causes tuberculosis and proved its transmissibility in animals.

In a personalized as well as in a general way, the work of these three Europeans eventually counted heavily in the development of the national public health program in the United States.

One of Koch's pupils, Dr. Joseph James Kinyoun, who had received his medical degree from the Bellevue Medical College in New York in 1882, studied at the Pasteur Institute in Paris, France, as well as in Germany before returning to join the United States Public Health Service. In 1886 Kinyoun started the first Public Health research center, the "Laboratory of Hygiene" at the marine hospital on Staten Island. This laboratory, founded on the work of Koch and Pasteur, eventually grew into today's tremendous medical research center, the National Institutes of Health in Bethesda, Maryland.

Again, an Alabama physician, Dr. Luther Leonidas Hill, went to the British Isles in 1883 to study surgery under Dr. Joseph Lister. Dr. Hill, the first surgeon in the United States to operate on the human heart, was so inspired by Lister that he named one of his sons Lister Hill. And Dr. Hill, in turn, so inspired that son, Senator Lister Hill, that he became to a marked degree the legislative sponsor of the large appropriations which built the National Institutes of Health, and made possible their vast researches. Senator Hill also sponsored the modern hospital construction bill and with Senator John F. Kennedy authored the National Library of Medicine Act.

Dr. Hill, the Senator's father, inspired his namesake, Dr. Luther Leonidas Terry, to the medical career which had made him a Surgeon General of the Public Health Service. Together Senator Hill and Dr. Terry dedicated the Luther Leonidas Hill Heart Center at the University of Alabama in 1959.

The marine hospitals continued to be a minor item in the annual report of the Secretary of the Treasury during the stormy years that President Andrew Johnson struggled with Reconstruction. On March 4, 1869, however, President Ulysses S. Grant came in, with an Army

organizer's viewpoint, for an eight year stay in the White House. Obviously, the long talked-of time when the Marine Hospital System would have to be reorganized had arrived.

Secretary of the Treasury George S. Boutwell inevitably turned to the Army's authority on hospitals, Dr. John Shaw Billings, for expert advice. Secretary Boutwell appointed from his own staff Dr. W. D. Stewart as Inspector of Marine Hospitals and arranged with the Army for Dr. Billings to serve as consultant. Drs. Stewart and Billings were detailed in the year 1869 to inspect and report on the condition of the Marine Hospitals throughout the country.

That they did a remarkably thorough and constructive job of inspection and recommendation is shown in the brief summary given by Secretary Boutwell in his annual report of 1869. It stated:

"The marine hospital service of the country is upon the whole in an unsatisfactory condition. Several hospitals have been erected at points where at present they are not needed, while the great commercial cities of New York, Philadelphia, and Baltimore have no hospital accommodations for the sick and disabled seamen.

"During the past season a careful examination of these institutions has been made by Dr. Stewart, an agent of the Treasury Department, and by Dr. Billings, of the United States Army. The result of their examination is that several hospitals have not been properly managed, that others should be closed, and that hospitals should be erected in New York, Baltimore, and Philadelphia.

"Measures have already been taken for the sale of the hospitals at several places where they are not needed. The hospital at New Orleans is represented as unsuitable, from bad location and other circumstances."

Dr. Billings himself saved, and presented to the New York Public Library, all the letters he received from Secretary of the Treasury George S. Boutwell ordering him to make long trips visiting the marine hospitals. Secretary Boutwell used as the official title of Billings: "Consulting Surgeon, Marine Hospital Service." These letters specified that Dr. Billings was to inspect the Marine Hospitals at New Orleans, Mobile, Key West, Savannah, Wilmington (North Carolina), Baltimore, Philadelphia, New York City, Buffalo, Oswego, Rochester, Detroit, Port Huron, Marquette, Milwaukee, Louisville, and San Francisco.

Strangely enough, none of the reports made by Dr. Billings, or by Drs. Stewart and Billings, on the Marine Hospital Service seem to be available now. Searches for these were made in connection with the writing of this book by experts of the National Archives, the Treasury Department, the Library of Congress, the Welch Medical Library, Baltimore, Maryland, the New York Public Library, and the National Library of Medicine.

However, the Billings reports on the Marine Hospital Service were not



sunk without leaving a trace. The report of its Supervising Surgeon for the year 1874 carried this passage:

"At any port where the Service is of sufficient magnitude, certainly at such a port as New York, there is no reason why a hospital exclusively for seamen should not be maintained as economically under the auspices of the Government as under municipal authority. In this connection, the suggestion of Dr. John S. Billings, of the United States Army Medical Corps, is worthy of careful consideration. This officer recommended the establishment of three, or at most four, National Marine Hospitals—one to be located on the Atlantic Coast, one on the Gulf, one on the Pacific, and one on the Great Lakes. To these might be sent all serious cases (fit for transportation) from the ports adjacent to them, so as to keep their wards and organizations always employed. Minor cases, as well as those unfit to bear, or too remote for transportation, would of course be treated as now, by local arrangement under the supervision of the Service."

A few short excerpts from the Billings reports as to conditions in the hospitals he surveyed were included in the 1882 annual report of the Supervising Surgeon General, as follows:

"Regulations of the Treasury Department a dead letter, each port being more or less a law unto itself. . . .

"System of inspections rarely carried out. The two hospitals where the 'board of visitors' made their visits were in worse condition than the average, far better results would be obtained by appointing the unsuccessful candidates for surgeon and collector as inspectors. (Report of Dr. J. S. Billings, U.S. Army, to the Secretary of the Treasury, October 18, 1869.)"

"The majority of the patients at Cleveland Hospital dissatisfied with their medical treatment and complained with regard to the quality and quantity of food given them. Mattresses filthy, no bed spreads, no surgical instruments. (Report of Drs. Stewart and Billings, October 14, 1889.) Medical officers substituted by the Service."

Dr. Fielding H. Garrison, who wrote *John Shaw Billings—A Memoir*, published in 1915, for almost forty years was on the staff of the Army Medical Library which Dr. Billings headed for thirty years. Their services overlapped by more than four years. Presumably Billings himself told Garrison about the major role he played in the reorganization of the Marine Hospital System. Said Garrison:

"In 1869-74 Dr. Billings was detailed, under the Secretary of the Treasury, to inspect and report on the condition of the Marine Hospital Service throughout the country, in connection with which he prepared a plan for its reorganization which was adopted. . . .

"He inspected the Marine Hospitals at all ports, from Baltimore to San Francisco and from Detroit to Key West . . . One merit of his work in this field was that he took the Marine Hospital Service



out of politics and grafted upon it the Army methods of organization and discipline. As General Woodhull says, he 'prepared a comprehensive and well-ordered plan for organization under a merit system and scheme for proper and independent hospitals and their management, all with responsibility to competent central authority.' "

In the very year that he was inspecting Marine Hospitals Dr. Billings began to think seriously in terms of a department of public health in the National Government which as time went on crystallized in his mind as a National Board of Health.

The Louisiana State Legislature had established the first State Board of Health before the Civil War, by an Act of March 15, 1855. After the war was over, Massachusetts took the lead by setting up a State Board of Health in 1869. Dr. Billings began to visualize a Board of Health in every State, cooperating with a National Board of Health. He gave an early bit of history on this subject in an address before the American Medical Association in 1880. The "arguments before Congressional committees" and the "reports to the Secretary of the Treasury" which he mentions were, of course, his own.

"In 1869 the fact that such a department of the Government would soon become necessary, together with its probable needs, were used as arguments before Congressional committees in favor of the formation of a large medical library in Washington, and the commencement of a complete collection of sanitary reports and statistics; and in the spring of 1870 in connection with reports to the Secretary of the Treasury upon the reorganization of the Marine Hospital Service, the relations of a department of public health to the several medical departments of the Government were briefly discussed," Dr. Billings told the American Medical Association.

Dr. Billings in his studies of the marine hospitals, of course, had the benefit of the report and recommendations on that subject that were made, with scanty results, by Drs. Loring and Edwards twenty years earlier. But with Dr. Billings knowledge was almost synonymous with action.

"I'll let you in on a secret—there's nothing really difficult if you only begin—some people contemplate a task until it looms so big, it seems impossible," Dr. Billings once told his biographer, Fielding H. Garrison, "but I *just begin* and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done."

The team of Boutwell and Billings worked so fast that Senate Bill No. 489 "to reorganize the marine hospital service, and to provide for the relief of sick and disabled seamen," came up for Senate debate on February 1, 1870. This legislation made the following principal proposals:

That the hospital tax on seamen be tripled, from twenty cents a month to sixty cents a month.

That there should be a \$50 fine for violating the Act by non-payment of tax.

That all the money collected should go to the Marine Hospital Fund for the care of sick and disabled seamen. This would leave to the Federal Government the financing of marine hospital construction and repairs.

That on the request of the Secretary of the Treasury, the President could detail a medical officer of the Army or Navy to serve as supervising surgeon of the Marine Hospital Service, and also to have charge of the disbursement of the fund.

A further proviso specified that if no such detail were made, the Secretary could appoint a surgeon to perform these same duties at a salary of no more than \$2,000 a year. For the first time the Marine Hospital Service would have a competent director working out of a Washington headquarters.

Secretary Boutwell intended to appoint Dr. John Shaw Billings, as first Supervising Surgeon of the Marine Hospital Service. This plan was deliberately blocked by the Senate Committee on Commerce which had considered the bill. This Committee recommended that the Senate strike out the section making it possible for the President to detail an Army or Navy officer, and insert instead:

"That the Secretary of the Treasury is hereby authorized to appoint a surgeon of the Marine Hospital Service whose duty it shall be, under the direction of the Secretary, to supervise all matters connected with the Marine Hospital Service, and with the disbursement of the fund provided by this act, at a salary not exceeding \$2000 per annum and his necessary travelling expenses, who shall be required to make monthly reports to the Secretary of the Treasury."

Members from the seaboard States reduced the proposed tax increase from sixty cents a month to forty cents a month. Senator Timothy Otis Howe, of Wisconsin, declared for wiping out the whole system.

"My judgement is that true economy requires we should either sink the Marine Hospitals, every one of them, or sell them," said Senator Howe. "If there has been any one inexcusable, intolerable abuse in the public expenses of the country it has been in the matter of building Marine Hospitals. That work commenced, I think, about 1830.

"It was a favorite mode of starting a new town in the West, if it was anywhere on a stream or a goodsized puddle, to get an appropriation for a Marine Hospital."

Senator Lot Myrick Morrill, of Maine, argued that much travel expense could be saved by detailing Army or Navy medical officers to supervise as originally suggested by the Secretary of the Treasury.

"I can hardly conceive why an officer stationed on the Coast, either of the Navy or Army, cannot be detailed to make all the inspection and

supervision on the Pacific Coast, for example, which under any reasonable circumstances are required," said Senator Morrill.

"The committee have decided that the supervising surgeon shall come from civil life," replied Senator Zachariah Chandler, of Michigan, chairman of the Committee on Commerce. "The Senate is aware the Army and Navy officers like to be detailed for active duty and get nearly double the pay. They have been crowded into almost every possible or conceivable position in civil matters.

"We thought it cheaper for the Government to appoint a physician and give him \$2000 a year and have his whole time."

The bill was voted by the Senate carrying the amendment which required that the Supervising Surgeon come from civil life, and was so accepted by the House of Representatives. It was signed into law by President Ulysses S. Grant on June 29, 1870.

It is barely possible that the members of the Senate Committee on Commerce had become a little weary of Dr. Billings testifying before them for a variety of proposed Federal incursions into the field of health.

Secretary Boutwell did not immediately fill the post of supervising surgeon. In his annual report of December 5, 1870, he made one more effort to get Dr. Billings. His text as to the Marine Hospital Service ran as follows:

"The condition of the marine hospitals has been improved during the past year. This result is largely due to Dr. J. S. Billings, of the Surgeon General's Office, who has visited nearly all of them, and through whose advice many important changes have been made.

"No appointment has yet been made of a superintendent under the act of the last session. The authority therein granted to appoint a superintendent is desirable, although the salary does not appear to be sufficient. I have however recommended such an alteration of the law as will permit the President to detail a surgeon of the Army or Navy to perform the duty of superintendent, without any addition to his pay, other than his necessary travelling expenses.

"With such authority, the Department could have the benefit of the services of Dr. Billings, or some other competent surgeon, with less expense than would be involved in a regular appointment, even with the present salary."

Secretary Boutwell went on to present one of Billings' principal arguments on Marine Hospitals—that they should be located in the principal ports. Said the Secretary of the Treasury:

"Five of the principal ports of the country, New York, New Orleans, San Francisco, Baltimore, and Philadelphia are without hospital accommodations and provision is made for the patients by contract with hospital or private parties. The War Department is in possession of a very desirable hospital at New Orleans, known as the Sedgwick Hospital, and I earnestly recommend the passage of an

act by which the building may be transferred to the Treasury Department for a marine hospital and an appropriation be made for the purchase of the land on which it stands.

"At the last session the attention of Congress was called to the subject of transferring David's Island at New York from the War Department to the Treasury Department for the establishment of a Marine Hospital. The recommendation is now respectfully renewed."

Congress had taken no action on Secretary Boutwell's request for a change in the law when the session ended in March 1871. In April, the Secretary accepted the inevitable and appointed as Supervising Surgeon, the title carried in the Act, a former military officer who had gone into civilian life—Dr. John M. Woodworth, the medical hero of the Sherman March to the Sea.



## Chapter 6:

### A SUPERVISING SURGEON AND A FIGHT TO THE DEATH Surgeon General John Maynard Woodworth 1871-1879

Dr. John Maynard Woodworth went back to Washington, D.C., where he had spent his winters on the staff of Smithsonian Institution in 1859, 1860, and 1861, as the first Supervising Surgeon of the Marine Hospital Service in April 1871. In his home city of Chicago, he had been serving as Sanitary Inspector of the Chicago Board of Health and as Surgeon of the Soldiers' Home.

In all probability, he took with him his handsome and elaborate case of surgical instruments which now belongs to the Office of the Surgeon General of the Public Health Service. It contains five tiers of surgical tools of the type used by surgeons in the 1860's and 1870's, so arranged that they may be compactly carried from place to place. No document attests that it went on that much-mentioned "train of over one hundred sick and wounded" including "three who had suffered amputation of the thigh" which was in Dr. Woodworth's charge on Sherman's March to the Sea, and which reached Savannah "without the loss of a single man." However, this case bears a brass plate which reads: "John M. Woodworth, Supervising Surgeon of the Marine Hospital Service," which indicates that it was with him in Washington during the first years of the reorganization of the Marine Hospital Service while he still had that title. It has been in the Service ever since.

Dr. Woodworth plunged at once into the work of organizing the obsolescent Marine Hospitals and infusing military morale and methods into the Service personnel.

Secretary of the Treasury George S. Boutwell may have chosen Dr. Woodworth because of some striking similarities in character and career to Dr. John S. Billings, his consultant from the Army whom he had really wanted as Supervising Surgeon. Apparently Secretary Boutwell kept Dr. Billings on as his consultant until he went out of office at the end of 1872, certainly Billings continued to consider himself as serving in that capacity through the administration of the next Secretary of the Treasury, William H. Richardson, in 1873, the year that cholera, coming up from New Orleans, swept the Mississippi Valley and Congress again became concerned over quarantine.

Both Woodworth and Billings were zealots for medical advance. Both were seemingly tireless in each day's work toward ambitious goals. Both were keenly interested in medical history, medical museums, and medical insignia.



Courtesy Library of Congress

Dr. John Maynard Woodworth, first Supervising Surgeon of the Marine Hospital Service, a title later changed to Supervising Surgeon General. He organized the Service, almost got an effective National quarantine law, designed the Service seal and its official flag, and set up through the Department of State a reporting system on epidemics overseas.

Woodworth had been one of the organizers of the Chicago Academy of Science, and in 1858 served as curator of its museum. Then came his service at Smithsonian, working under the personal direction of Professor Spencer F. Baird, the great American naturalist, who launched in this country field studies in zoology and botany. Dr. Billings also cooperated very closely with Smithsonian.

Both men were deeply interested in European medical advances. Right after the Civil War, Dr. Woodworth spent a year in the hospitals of Berlin and Vienna, taking courses of instruction and getting personally acquainted with the great work in laboratory methods being done by Dr. Koch. Billings followed the works of Pasteur, Lister, and Koch at a distance, but would visit Lister in his home as an old friend by correspondence before the decade was over.\*

At first the relations between Dr. Woodworth and Dr. Billings appeared to be amiable. But soon the rivalry between them became sharp and uncompromising. Both wanted to start an important National Government health service. Each wanted to do it in his own way. For Woodworth it meant broadening the powers of the Marine Hospital Service, of which he already was the head. Billings contemplated the creation of a National Board of Health to cooperate with State and municipal boards of health, which he was confident he would be able to manipulate.

By December of 1871, before Dr. Woodworth had been at work nine months, he had accomplished enough to receive a commendation in the annual report of Secretary Boutwell. Said the Secretary:

"Under an Act of Congress approved July 30, 1870, Dr. John M. Woodworth has been appointed Supervising Surgeon of the Marine Hospital Service. His administration is satisfactory to the Department."

The Secretary was able to report that, under the new law which had doubled the hospital tax on seamen, receipts for 1871 had been \$293,592.14 as against \$168,153.70 in 1870.

The 103-page report produced by Supervising Surgeon Woodworth at the close of his first fiscal year, June 30, 1872, revealed the thorough way he went at his task. After summarizing the history of the Marine Hospital Service from its beginning in 1798, he told what had happened to each of the hospitals afterward established "at an aggregate cost of \$3,214,518.95."

Dr. Woodworth continued the campaign instituted by Dr. Billings to sell off the hospitals at the small inland ports and to get Government hospitals going in the great port cities of New York, Philadelphia, Baltimore, New Orleans, and San Francisco where service to the seamen was by contract. He also asked for a new one at Pittsburgh.

He said he had appointed four surgeons, "selected on account of their professional culture," as "Medical Inspectors of Marine Hospitals at Four Large Ports." They were: Dr. Heber Smith, New York; Dr. E. O. F. Roler,

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\*N.B. Billings actually was a close friend of Robert Koch and was the first American to receive Koch's tuberculin for clinical testing.



Chicago; Dr. Orsamus Smith, New Orleans; and Dr. C. N. Ellinwood, San Francisco. They had charge of the admissions to hospitals and the discharges therefrom. They set up and ran the service for outpatients. They were expected "to look after the collection of the hospital tax." Said Dr. Woodworth, "The results attained at their respective stations are evidence of their administrative ability."

Nobody now knows how much of Dr. Woodworth's 1872 descriptions of the hospitals and the statistics on their finances he got from those four regional men, how much he got from the Billings-Stewart and the earlier Loring-Edwards reports, and how much he got from his own inspections and research in that one year. However, it was a complete and chilling compilation of the cost of the change from river to rail transportation; of the deterioration and destruction during the Civil War, and of the damages done by floods, fire, and even an earthquake.

What had happened to that handsome hospital in San Francisco? Here is how it appeared in his 1872 report:

**"HOSPITAL AT SAN FRANCISCO, CALIFORNIA—(NOT IN USE)"**

"The deserted hospital building situated on Rincon Point, in the city of San Francisco, was commenced in 1851, and was opened to marine patients in 1854. The hospital was very large, strongly built, and luxuriously furnished. The building was abandoned in 1868, on account of slight injury which it sustained by reason of an earthquake. The injuries consisted of the throwing down of a chimney and the cracking of the plastering in one end of the building. Since the abandonment of the hospital, it has gone to ruin to such an extent as to make the repair of the building impracticable and is consequently of no further use to the service.

"Marine patients are at present maintained by contract in a local hospital provided by private parties. The medical management of this hospital, and of the service of the port, are under the charge of Dr. C. N. Ellinwood, appointed by the Department."

Listed as then unfinished were the second Marine Hospital at New Orleans and the second Marine Hospital at Chicago.

On a swamp back of the city, a cast iron building at New Orleans had been erected at a cost of more than half a million dollars. Construction was halted just before the Civil War. Said Dr. Woodworth: "The site is still an unhealthful, and consequently, an improper locality for a hospital. To complete the building in accordance with the original plan would probably require an additional expenditure of \$200,000. The building has never been occupied as a marine hospital, and it is better that it should be suffered to rust away than to try the experiment."

The new hospital at Chicago was quite a different matter. Dr. Woodworth said it was too far from the port, and that a pavilion hospital which would serve as well could have been built for a fourth of the money already expended. Still he gave it high praise: "It is the finest structure of its kind in the country and possesses many features which make it far



superior to the marine hospitals hitherto constructed. Care has been given to the ventilation of the wards, and the heating apparatus and laundry are provided for in a separate building."

Dr. Woodworth in compiling his report had computed the cost of each United States marine hospital building and site, from the organization of the Marine Hospital Service in 1798 to June 30, 1872.

A few glaring examples of the losses taken on Marine Hospitals as he gave the situation, follow:

Cincinnati, Ohio, completed in 1860, (\$182,665.48) sold in 1866 for \$70,500. Used only as a military hospital.

Burlington, Iowa, completed in 1858, (\$29,996.84) sold in 1876 for \$6,000. Used very little by seamen. Taken over by the Army.

Burlington, Vermont, completed in 1858, (\$39,572.30) sold in 1866 for \$7,164.41 "having never been used for the purpose for which it was intended in consequence of the lack of patients."

Wilmington, North Carolina, completed in 1860, (\$43,897.44) sold in 1870 for \$4,020, "having never been used as a marine hospital."

Galena, Illinois, opened in 1861, (\$48,789.58) used four and a half years "much of the time with only one or two patients and often with empty wards"; sold in 1868, "for which the sum of \$6,321.08 has been received and a note for \$1,000 yet remains unpaid."

Paducah, Kentucky, opened in 1852, (\$58,525.77) occupied by the military authorities in 1861, "was burned in 1862 which was a fortunate disposition of the hospital as the service at Paducah never was sufficient to require a Marine Hospital."

Napoleon, Arkansas, completed in 1855, (\$62,290.83) despite warnings that the Arkansas River on one side and the Mississippi River on the other would wash it away, it was demolished in 1868. "The grounds were washed away and the building fell into the river. The remnants of the wreck were sold for \$30."

Supervising Surgeon General Woodworth in his first annual report even included what he could not find, as follows: "A marine hospital at Port Angeles, Washington Territory, was sold in accordance with instructions contained in a Department letter dated April 14, 1868, for the sum of \$165; but up to date of closing this report no record has been found in the Department of the establishment of a marine hospital at that port."

In summary he said: "Ten marine hospitals are in present use for the accommodation of sick and disabled seamen, seven of which are conducted solely by the Government, and three leased to private parties. Two marine hospitals are unfinished; two have been abandoned; one was transferred to the War Department; one washed into the river; and fifteen were sold for the sum of \$376,879.60."

With one notable exception, the first hospital at Chicago, the fifteen hospitals sold represented heavy losses to the Government. The Chicago hospital opened in 1852 at a cost of \$64,070.98. Property values rose in

Chicago, and it sold in 1864 at \$132,000. But the Government had not given possession of the premises when it was burned in the great fire caused by Mrs. O'Leary's cow in 1871. Dr. Woodworth did not say who stood the loss—the Government or the purchaser.

The following are excerpts from Dr. Woodworth's reports on the seven hospitals owned and operated by the Government:

Pittsburgh, Pennsylvania: "There is a blast furnace on one side of the grounds, and a railway-iron rolling mill on the other; so that, no matter which way the wind blows, the hospital is continually filled with soot and smoke."

Cleveland, Ohio: "The hospital building, which is of cut stone, is finely located and is under successful operation at the present time."

Key West, Florida: "The building and grounds have suffered serious injury from storms several times since the hurricane of 1846. The service has always been small, and the hospital one of the most expensive to maintain, in consequence of its isolated position on an island."

St. Louis, Missouri: "The hospital and grounds are at present in good condition."

Portland, Maine: "The building has had extensive repairs since it was first occupied (July 1859) and still requires an outlay of twelve or fifteen thousand dollars. The building is imposing in appearance, but was badly planned and defectively constructed."

Detroit, Michigan: "The Marine Hospital at Detroit is well located, and in good state of preservation."

Boston, Massachusetts: "The hospital building, which is one of the largest of its class, is finely located and imposing in appearance, but was badly planned both for health and economic management. The ventilation is poor, and the floors are made of inferior material, full of cracks and difficult to cleanse. One of the results of these defects is the prevalence of erysipelas among the surgical cases treated in the hospital; hardly a wounded patient escaping the extra risk to life to which this complication subjects him."

It is of interest that Dr. Woodworth assigned to Boston a surgeon who corrected all these errors and ended the prevalence of erysipelas there. He was Dr. John B. Hamilton, who probably because of this record became the second Supervising Surgeon General of the Marine Hospital Service.

Of the three Marine Hospitals leased to private parties, Dr. Woodworth reported:

Mobile, Alabama: "During the war of the rebellion, all the outfit of the hospital disappeared, and nothing remains which can be claimed by the Government except the old building and grounds. The hospital is at present leased to Dr. O. L. Crampton, who has the care of the marine patients and the management of the hospital. It is consequently designated a hospital of Class II. The building is old, and unworthy of any considerable outlay for repairs."

Louisville, Kentucky: "After the breaking out of the war, the hospital was discontinued, but has since been opened as a hospital of Class II. The service has greatly increased at this port during the past few years."

Natchez, Mississippi: "Since the war, the hospital has been leased to the State of Mississippi, the State agreeing to care for the marine patients, in consideration for the use of the hospital, free of charge. The hospital service at Natchez was never large enough to require a Marine Hospital."

The report showed too, that expenditures had gone down.

During the year, 854 seamen were treated outside of the hospitals for minor ailments, "the expense in each case not exceeding on the average the cost of a single day in hospital."

The Supervising Surgeon had put a considerable part of the procurement under a competitive bidding system.

He had cut off the one percent commission which had traditionally been allowed the Collector of Customs—illegally, Dr. Woodworth said—thus saving about \$4,000 in one year.

Dr. Woodworth recommended that Congress amend the law so as to include in the Marine Hospital Service officers and seamen of the Revenue Cutters, Life Saving Service vessels, vessels of the Army Engineer Corps, and of the Lighthouse Board. He said that a thorough revision of the regulations was necessary and would soon be made.

He devoted about thirty pages of his report to a summary of surgical cases treated in the United States Marine Hospitals "as a nucleus of surgical facts for future reference." He also included thirty-nine pages of statistical tables—information from all ports on the collection and expenditure of the seamen's fund; and a cumulative record of the year-by-year collections and expenditures of all the marine hospitals that ever had been built by the Federal Government.

In view of the later conflict between the two men one more small item of Dr. Woodworth's first report merits mention. He acknowledged the preparatory work on the reorganization done by Dr. Billings in a paragraph which fell short of glowing praise. It said:

"That the Marine Hospital Service had suffered from the lack of proper medical supervision is a fact too apparent to be controverted. Many abuses had crept into the service which it was impossible to correct without the aid of a supervising officer versed in sanitary science, and familiar with the management of hospitals. Sensible of this need of the service, the present Secretary of the Treasury, pending the preparation and passage of the Act of June 1870, availed himself of the advice of Surgeon J. S. Billings of the United States Army, who gave valuable aid to the Service in the limited time he was able to spare from his duties in the office of the Surgeon General of the Army."

Dr. Woodworth's phrase "versed in sanitary science" had great sig-



nificance in the early 1870's. The sanitarians, active even before the Civil War, had added the killing of bacteria to their code of cleanliness after the scientific experiments of Pasteur, Lister, and Koch. The time had come for them to organize in the name of public health.

Supervising Surgeon Woodworth had been on the job in Washington, D.C., one year to the month, from April 1871 to April 1872, when this major move was made. The principal promoter was Dr. Stephen Smith, of New York, a public health patriarch of almost Biblical proportions. He lived to be ninety-nine years old. In his ninety-eighth year he actively celebrated as honored guest the fiftieth anniversary of the American Public Health Association which he had started in 1872.

During the Civil War he had conducted health investigations in New York which revealed such dangerous conditions that the State Legislature in 1866 created the Metropolitan Board of Health with almost autocratic powers. Dr. Smith was appointed to that Board. At its office, 301 Mott Street, New York City, Dr. Smith called together four physicians and an architect at 3 p.m. on April 18, 1872. They were: Dr. E. M. Snow, Superintendent of Health, Providence, Rhode Island; Dr. J. H. Janes of New York; Dr. C. C. Cox, President of the Board of Health, Washington, D.C.; and Carl Pfeiffer, architect.

A more formal meeting was held that night at the New York Hotel. Added to the conference were: Dr. Elisha Harris, who had been one of the two founders of the United States Sanitary Commission; Dr. Moreau Morris, surgeon of the American Popular Life Insurance Association of New York; and Dr. Heber Smith, head of the Marine Hospital Service in New York.

A Committee of Permanent Organization was set up with Dr. Stephen Smith as chairman. It was voted that the chief medical officials of the United States Government be added to this committee, and the name of Dr. Woodworth led the list. This committee called an organization meeting at Long Branch, New Jersey, September 12, 1872. There a constitution was adopted, officers were elected, a few new members were chosen for their proven devotion to sanitary science.

Dr. Stephen Smith was elected the first president; Dr. Snow, vice president; Dr. C. B. White, president of the Louisiana Board of Health, second vice president; Dr. Elisha Harris, Register of Records, New York, secretary; and Dr. J. H. Rauch, of Chicago, treasurer. Dr. John M. Woodworth was elected to the Executive Committee.

The object of the American Public Health Association was stated in its Constitution as: "The advancement of sanitary science and the promotion of organizations and measures for the practical application of public hygiene." Its members would be, the Constitution said, "selected on their acknowledged interest in, and devotion to, sanitary studies and allied sciences and to the practical application of the same."

It is to be noted that two women doctors were among the original



members of the American Public Health Association—Mrs. Mary Putnam Jacobi, M.D., and Miss Emily Blackwell, M.D., both of New York. The American Medical Association did not, at that time, admit women physicians as members.

At the Long Branch meeting, Dr. Cox of Washington, D.C., presented the draft of a bill which he proposed should be introduced in Congress for the establishment of a sanitary bureau as a part of the Interior Department of the Government. No action was taken by the APHA on this. At the next annual meeting in Cincinnati, Ohio, May 1 to 3, 1873, Dr. Cox presented a paper on the necessity for this bureau. It would be set up with an executive officer at its head, to be called "Commissioner." The American Public Health Association, made up largely of State and municipal health officers, was fearful of giving so much power to one man. It did not endorse the bill of Dr. Cox.

The American Medical Association also was concerned with this subject. In 1872, a committee which had been considering the establishment in the AMA of a National Health Council suggested an "appeal to the Government to establish a department of health to be connected with the Government, but under the surveillance of this Association." The AMA rejected such an appeal, but continued the committee as "a special Section on State Medicine and Public Hygiene." In 1873, establishment of a National Sanitary Bureau was proposed and referred to the Committee on Hygiene, and a separate Section on State Medicine was set up. In 1874, the Section on State Medicine passed a resolution to make such an appeal to Congress. It appointed a committee for the purpose of drafting a bill for a National Department of Public Health at Washington to be presented for Association approval at the 1875 meeting of the AMA.

Such was the situation of hesitancy on the part of professionals as to the place of health in the National Government when Congress indicated its intention to take some action to curb cholera and yellow fever. On March 25, 1874, Congress approved a joint resolution that the Surgeon General of the Army investigate the history and cause of the cholera epidemic of 1873; and the chief of the Marine Hospital Service investigate the history and cause of the yellow fever epidemic of that same year.

Dr. Ely McClellan, Assistant Surgeon General of the United States Army, was assigned to write the cholera report. He promptly recruited Dr. John S. Billings, also in the Office of the Surgeon General of the Army, to prepare a cholera bibliography. Dr. Frank W. Reily of the Marine Hospital Service was delegated to write the 1873 yellow fever report.

These were the principal diseases on which Congress probably would base a decision as to a new law on National quarantine and as to a possible Federal agency to guard the public health. The cholera report was considered to be more important than the yellow fever report because 1873 had been a "cholera year." It had gone to the Army and not to the Marine Hospital Service. However, it developed later, Dr. Woodworth, chief of

the Marine Hospital Service, considered that Congress also intended him to make his own Asiatic cholera investigation.

With this conflict smoldering, all appeared to be amity between Dr. John S. Billings, the veteran Army advocate of public health, and Dr. John M. Woodworth, the rising health professional of the Marine Hospital Service, at the annual 1874 meeting of the American Public Health Association in Philadelphia, Pennsylvania, November 10 to 13, 1874. On the opening day, they appeared on the same panel discussion of hospital construction, and Dr. Woodworth twice quoted Dr. Billings. It is entirely possible that Dr. Billings still was serving as consultant on marine hospitals for the Secretary of the Treasury—by this time B. H. Brewster. Certainly Dr. Fielding H. Garrison, biographer of Billings, specifically stated that Dr. Billings was relieved of his Treasury duty in 1874.

At any rate, Dr. Woodworth, when informing the Association that his strong recommendation for the construction of marine hospitals on the pavilion plan had been accepted by the Government, generously added:

“Surgeon J. S. Billings of the Army Medical Corps also advised the construction of pavilion hospitals for this service instead of repeating such costly structures as the First Marine Hospital at San Francisco, or the hospitals at New Orleans, Chicago, Chelsea, Massachusetts, etc.”

Again, Dr. Woodworth commented: “Dr. Billings had devised the plan of putting the laundry on the upper story of the executive portion of the hospital building, an arrangement which promises to obviate the necessity for a separate building for laundry purposes.”

At the Philadelphia meeting, the American Public Health Association endorsed a national health agency with this resolution:

“That a committee consisting of a member of the Association from each state and territory of the Union, of which the President of the Association shall be chairman, be appointed to petition Congress, at its next session, to institute a bureau of health, to be located at Washington City, with a branch at the seat of each state and territorial government.”

All this took place just two months before Dr. Woodworth, in a surprise move, assumed National leadership in the cholera field, using as his medium the final report of his competitors in the office of the Surgeon General of the Army.

This report on the 1873 cholera epidemic, more than 1,025 pages in length, sent to press in January of 1875, is one of the most curious documents ever to emerge from the Government Printing Office. It was titled *Cholera Epidemic of 1873 in the United States* and was Executive Document No. 95, House of Representatives, 43rd Congress 2nd Session.

Dr. John S. Billings placed it in the library he was collecting for the Office of the Surgeon General (now the National Library of Medicine). Only one author is named on the cover, WOODWORTH, in large letters.

However, Dr. Woodworth wrote only a 25-page foreword to the McClellan report, so adroitly phrased as to make it the center of attention.

Dr. Woodworth made a bold bid for cholera control—which obviously came in across the sea from Asia and through Europe—through his governmental position which he designated in this document “Supervising Surgeon U.S. (Merchant) Marine-Hospital Service.” He titled his report: *THE INTRODUCTION OF EPIDEMIC CHOLERA THROUGH THE AGENCY OF THE MERCANTILE MARINE: SUGGESTIONS OF MEASURES OF PREVENTION*. His most spectacular suggestion was that the President of the United States, by a circular letter through the State Department, instruct all consuls abroad to cable to this country news of any cholera outbreak in the ports to which they were assigned. He had Secretary of the Treasury B. H. Bristow to call this suggestion to the attention of President Ulysses S. Grant who promptly transmitted the report to Congress with a Presidential message which listed the Treasury report by Dr. Woodworth ahead of the War Department report by Doctors McClellan and Billings.

Dr. Woodworth held that cholera broke out in this country because U.S. ports were not warned in time.

“What is needed is that the National Government, through its consular officers, at least at each port of departure, shall acquire the necessary information, and then promptly and intelligently furnish it to the ports and localities exposed,” Woodworth wrote. “This is entirely aside from a national quarantine-board, a national bureau of health, or other specific organization, concerning the present wisdom and expediency of which, opinion is at least not unanimous.

“It is a simple utilization of already-existing machinery on the part of the General Government, for the acquisition of knowledge indispensable to the general welfare. Such knowledge cannot through its own agents be acquired by a State or by a municipality; and yet upon such knowledge are the city and the State alone qualified or competent to take action; and upon such knowledge and action does the future immunity from cholera of the country at large depend.

“A circular letter from His Excellency the President, through the Department of State, instructing consular officers to place themselves in communication with the health authorities of their respective localities; to advise promptly, by cable if necessary, of the outbreak of cholera (or other epidemic disease) at their ports or in any section in communication therewith; to inspect all vessels clearing for United States ports with reference to the original and intermediate as well as the final ports of departure of emigrants thereon; and to report, always by cable, the sailing and destination of any such vessel carrying infected or suspected passengers or goods—this should be the first step.”

Dr. Woodworth, in a footnote, cited the section of the Statutes of the United States under which he held the President was authorized to do this.



"And the next step would be equally simple," he continued, "A medical officer, selected for his good judgement and attainments in sanitary science, should collate and digest the information thus obtained, and transmit direct to the threatened ports, as well as through the public press, the note of warning. Thus advised, the threatened community would have plenty of time for preparation; and the publicity given to the warning would be the most efficient means of insuring proper precautionary measures.

"International sanitary action is too remote, and the steps toward it have been too vacillating in the past to admit of much hope from it in the near future. But the acquisition and diffusion of general sanitary knowledge is a matter in which each nation for itself may engage, and when such knowledge becomes sufficiently widespread all else may be safely left to local and individual effort. Let the General Government do its share in collecting and publishing the information—a work which it alone can do—and the various and varying details of inspection, isolation, etc., etc., will be most efficiently, economically, and satisfactorily performed by those most directly and vitally interested—the people themselves."

Public health experts have debated as to whether the first Surgeon General thought of his office as protecting the health of the whole people, or whether his concept was limited to the narrow legal limit of aid to sick and disabled seamen. His own words, as here quoted, show that he envisaged himself as building a health service for the good of all. To make this possible, however, he had to present the whole problem as a possible part of his own governmental role.

This he did by complimenting McClellan's report on its suggestions on inland control of cholera transportation, quickly adding this pitch for his own Service:

"These deductions, however, should be first applied to the subject of modes of excluding the poison—which is, ipso facto, the disease—from our shores.

"So far as this country is concerned, that question may be conveniently discussed under the general topic of Marine Sanitation, including in this term the Sanitary Supervision of Ocean Travel and Traffic, the Question of Quarantine, the Mode of Dealing with Cholera on Shipboard, and the Treatment of an Infected or Suspected Ship on Arrival at a United States Port."

Dr. Woodworth included in his text an appendix giving a precise report of his own cholera investigation in this country.

"With the view of making the collection of facts concerning the epidemic as fully as possible, the Supervising Surgeon, in addition to personally visiting many of the points at which the epidemic prevailed, addressed the following circular letter to some two hundred and sixty physicians in the infected districts," he said.

The letter called for case by case answers to twenty questions. He said



that he got replies from eighty-five doctors on which he gave names and addresses. These doctors furnished facts on one hundred and thirty localities in twelve States.

"The mass of material thus obtained," he said, "was placed at the disposal of Dr. McClellan who was writing the cholera report for Congress."

Dr. McClellan in an author's note preceding the Table of Contents credited both Dr. Woodworth and Dr. Billings, as follows:

"From Dr. John M. Woodworth, Supervising Surgeon of the Marine Hospital Service, who was associated with this work, I have received valuable contributions, which will be found duly accredited in the narrative of the epidemic.

"At my request, Assistant Surgeon John S. Billings, United States Army, has prepared a most exhaustive bibliography of cholera which will be found to be one of the most valuable contributions to literature of the century."

Said Dr. Billings: "The library of the Surgeon-General's Office at Washington is comparatively rich in the literature of this subject, a good foundation having been laid several years ago by the purchase of the collection of works relating to epidemic diseases made by the late Professor Bart de la Faille of Groningen, and the majority of recent treatises on the subject have since been added as they appeared. The files of medical journals in the library which have been examined for this purpose comprise a little over 8,000 volumes, being about 75 percent of all which have been published, and the majority of those still wanting were published prior to 1830 or are of minor importance."

This was in line with the many presentations of his Army work that Dr. Billings made to the American Public Health Association to obtain backing for further health legislation in Congress.

Dr. John M. Woodworth's name appeared on the first published American Public Health Association membership list as "Superv. Surg. U.S. Marine Hospital Service and U.S. Commissioner of Emigration, Washington, D.C." On March 3, 1875, Congress changed his title to "Supervising Surgeon General" and provided that officer should be appointed by the President with Senate confirmation instead of being chosen by the Secretary of the Treasury.

Dr. Woodworth had diligently built up to the proud place of Presidential appointee. He had placed the Marine Hospital Service on a military career basis. Discipline and administration were along military lines. Appointments were made to the general service, not to particular hospitals or stations. Surgeons were transferred from smaller to more important stations as vacancies occurred. Dr. Woodworth required that appointments should be made to the medical staff only after examination by the Supervising Surgeon, and drummed on Congress to make this requirement a law.

Early he started building up an esprit de corps in the Marine Hospital Service, to impress upon the country that its surgeons were at the forefront of medical science. In January of 1874, he published a volume which brought this to public attention in two ways. On its cover was emblazoned the new Seal of the Service, which also appeared on the title page. The design was the anchor of the sea crossed at right angles with the Caduceus of Mercury, with two serpents entwined on the staff. It was not the Caduceus of Aesculapius, with a single serpent, symbol of medicine.

The Mercury symbol chosen by Dr. Woodworth linked the Marine Hospital Service more closely with its actual functions than the single-serpent symbol would have done. According to legend, the god Mercury came upon two serpents knotted in battle and separated them with his wand. The wand itself was symbolic of enchantment, of an influence uncanny. The snakes with the staff thrust between them became Mercury's mark. A pair of wings, symbol of swiftness, was added to the staff.

The volume on which this seal was emblazoned was titled: *Nomenclature of Diseases*. Dr. Woodworth enterprisingly explained that the "Provisional Nomenclature of the Royal College of Physicians, London" had been adopted for the use of Medical Officers of the Marine Hospital Service. This volume was one of the earliest to be published in this country on disease nomenclature, a subject which has continued to hold the interest of world experts on public health. The hyphen in Marine-Hospital was his too, and after his first report, he regularly used it to make the name distinctive. In publishing the *Nomenclature* for the use of his Service, Dr. Woodworth was joining the leading physicians of all the countries, including Dr. John S. Billings, of the U.S. Army, who were working for identical terminology in diseases so as to make statistical comparisons possible.

On all his subsequent official reports, Dr. Woodworth used the Seal of the Marine Hospital Service. With a change of title, and the dropping of the 1870 date, this seal has now become the symbol of the Public Health Service, used on its flag, and emblazoned on the Office of the Surgeon General.

From this beginning, the caduceus of Mercury became the sign of the pacifier. It was carried by heralds and ambassadors, who thus became immune to attack as it served as a flag of truce. It developed into a fitting symbol for Army medical men who have a peaceful mission on the battlefield. Their services are to heal the suffering, of either side. The caduceus of Mercury also became the symbol of commerce, which made it precisely correct for the medical service of the merchant marine.

The two-serpent symbol had been used by the Army Medical Corps since 1851, and is now on automobile tags used by many physicians. However, the American Medical Association, on its official documents, uses the single serpent. The Marine Hospital Service seal artfully carried the initials "U.S." for United States, between two dates, 1798, the year John Adams signed the law, and 1871, the year Dr. Woodworth took charge.

# NOMENCLATURE OF DISEASES

PREPARED

FOR THE USE OF THE MEDICAL OFFICERS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE

BY THE

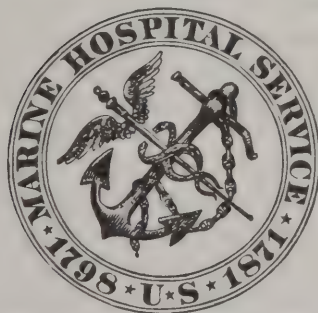
SUPERVISING SURGEON

*(John M. Woodworth, M. D.)*

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BEING THE CLASSIFICATION AND ENGLISH-LATIN TERMINOLOGY  
OF THE PROVISIONAL NOMENCLATURE OF THE  
ROYAL COLLEGE OF PHYSICIANS, LOND.

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WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1874.

Courtesy National Library of Medicine, PHS

The seal designed by Dr. John M. Woodworth was first used on the cover of his publication *Nomenclature of Diseases*, in 1874. It has been used in annual reports ever since.



The States Rights issue in the conflict as to a National health agency continued to be argued all through 1875.

Dr. Henry I. Bowditch, of the Massachusetts Board of Health, who spoke with a voice of authority equal to that of Dr. Stephen Smith, of New York City, squelched any immediate hope for a Federal health agency by his speech before the 1875 meeting of the American Medical Association held May 4 through 7 in Louisville, Kentucky. He began his 1875 speech by announcing that he was departing from the subject assigned to him, advances and discoveries in public hygiene during the past year, to discuss "The Future Health Council of the Nation."

"I use the epithet 'future' with definite purpose, for I think that any attempt to establish a National Council until there are State Boards of Health in every State will not only be premature but positively prejudicial to the very object which I trust we all would wish to gain by the establishment of a council which will be an honor to our country, and the peer of any which may hereafter be inaugurated in Europe," said Dr. Bowditch.

He said the AMA had wisely declined in the past to make any appeal to the Government for a National Department of Public Health at Washington. He made a detailed report on a circular letter he had sent to colleagues in thirty-six States asking their opinions on a future National Health Council—the replies had convinced him the country was not ready for it yet.

"We must all admit that only by fair, manly reasoning and steady work, not by frantic appeals to patriotism or to rapid and imperfect talk or work, can we gain a broad and firm basis on which a National Council can rest," said Dr. Bowditch.

At the APHA meeting in Baltimore, Maryland, that year of 1875, Dr. Woodworth eloquently expressed his view that the National Government as well as the governments of the States had a logical and legal interest in quarantine and a disease intelligence service.

"Nothing in all the vexed question of States rights seems to be so clearly understood, so uniformly admitted, so absolutely unquestioned, as, in the language of Chief Justice Marshall, 'the acknowledged power of a State to provide for the health of its citizens,'" he said.

"But it is probably equally obvious that the National Government, in the exercise of its express powers, that, for example, 'to promote the general welfare'—may use means that may also be used by any State in the exercise of its acknowledged powers—that, for example, of regulating quarantine and health matters of every description.

"To wait until the potential or active germs of disease, in the persons of poorly-fed, badly-lodged, etiolated, anoxemiased, and generally demoralized emigrants actually arrive within the jurisdiction of the port before enforcing preventive and preservative measures is hardly the highest sanitary wisdom.



"To deliberately reject an offered auxiliary which might secure the enforcement of such measures from the first moment the emigrant sets foot on deck, nay, even before this by providing for such measures in the construction, equipment and belongings of the vessel itself, to reject or oppose this because of some fancied or real encroachment upon or conflict of, authority, would seem decidedly less than average wisdom."

Dr. Woodworth had been moving administratively to strengthen his own position. He had revived use of the old quarantine law of 1799, long idle on the statute books. The Marine Hospital Service was complimented by APHA president Joseph M. Toner, of Washington, D.C., nationally-known physician and sponsor of the Toner lectures on medicine, for the fact that yellow fever "the scourge of the Gulf seaports" had been suppressed wherever it appeared.

Said Dr. Toner: "The Marine Hospital Service, and the local government authorities in the South have been working harmoniously and efficiently together during the past season under an old law of the United States, requiring the cooperation of the revenue and military forces with the State health or quarantine officers for the protection of the public health."

Dr. Billings was pressing forward his idea of a fact-collecting national health service. He presented that year in Baltimore, Maryland, the plan for "A Systematic Sanitary Survey of the United States." He had headed a committee of twenty-four physicians who had produced "schedules of inquiry" into nineteen subjects. These schedules comprised between five hundred and six hundred questions. Among the subjects to be surveyed for their public health implications were water, housing, streets, schools, hospitals, sewage, garbage collection, cemeteries, slaughter houses, disease statistics, and quarantine.

"It is unnecessary to enlarge upon the interest and value which the information called for by these questions would have, if collected with any reasonable degree of completeness and properly collated," said Dr. Billings.

"It would establish the foundations of a National Public Hygiene in this country, and would be a landmark from which future progress could be estimated. And until some such sanitary survey is accomplished, State Medicine in this country cannot take rank as a science, but must rest mainly upon individual opinion and hypothesis, as it now does."

Dr. Billings further commented: "It is true that in the presence of an epidemic, people will do, and permit to be done, much that at other times would be impossible, and cholera has in this way indirectly effected so much for public hygiene, that in the long run it may have saved more lives than it has destroyed."

On November 15, 1875, John M. Woodworth proudly sent to Secretary of the Treasury B. H. Bristow the annual report of the SUPERVISING SURGEON-GENERAL, with the opening sentence: "Sir:

I have the honor to submit herewith a report of the operations of the Marine-Hospital Service for the fiscal year 1875, being the seventy-seventh year of the Service and my fourth annual report."

That was the first use of the formula of giving in each annual report the number of years the Service had functioned along with the number of the annual reports. The formula still is followed.

In September 1876, the International Medical Congress was held in Philadelphia, Pennsylvania. Dr. Woodworth presented a paper, "The General Subject of Quarantine, With Particular Reference to Cholera and Yellow Fever." A discussion of two hours and a half followed it. At the close, the Congress adopted the six conclusions that Dr. Woodworth had presented. They would require: (1) Good sanitary conditions for all vessels at all times. (2) A system of port sanitation for each country. (3) Detention of vessels in quarantine only long enough for inspection and for a thorough disinfection and cleansing. (4) Wisely directed internal sanitary measures. (5) "So far as America is concerned, prompt information should be had of shipment of passengers and goods from districts affected with cholera and yellow fever." (6) An international sentiment should be awakened "so strong as to compel careless and offending people to employ rational means of prevention."

Dr. Woodworth signed this document, published as a monograph, as "Surgeon-General, Mercantile Marine Hospital Service, United States of America."

Both Dr. John S. Billings and Dr. John M. Woodworth used the annual meeting of the APHA, held in Boston October 3 to 6, 1876, as a forum to advance their opposing ideas of national public health organization. That was the year Rutherford B. Hayes, of Ohio, was elected President of the United States. He would bring into office with him, on March 4, 1877, Secretary of the Treasury John Sherman, brother of the General with whom Dr. John M. Woodworth "Marched to the Sea."

The Association itself had forged ahead so far in the organization of State boards of health and the promotion of sanitary engineering that its Secretary now was saying, "The happiness and prosperity of communities have been so greatly promoted that in all portions of our country there is now an assured basis of effective organization of the public health service."

The paper presented by Dr. Woodworth that year, "The Safety of Ships and of Those Who Travel In Them" described all the lifesaving devices in the Treasury Department—lighthouses, light vessels, fog signals, day beacons, buoys. He told of the Coast Survey, the Life-saving Service, and the thirty-four revenue vessels which "in addition to protecting the revenue render efficient service to vessels in distress." He described the Steamboat Inspection Service "more especially intended to prevent the loss of life on steam vessels." He said the Marine Hospital Service through

its medical officers could ascertain the physical condition of seamen before shipping "and thereby prevent unseaworthy sailors from endangering the safety of vessels as they do now." Quoting James G. Blaine, of Maine, Dr. Woodworth added, "The commercial marine of the United States 'represents our distinct nationality in all climes and upon all seas; an interest that has given more to, and asked less of, the government than any other of similar magnitude; an interest more essentially American, in the highest and best sense, than any other which falls under the legislative powers of the government.'"

Dr. Billings took as his subject, "The Rights, Duties and Privileges of the Community in Relation to those of the Individual In Regard to Public Health." He maintained that the individual had no right to endanger the health of the community.

"In this country, legislation on public health must be mainly a matter for individual states," said Dr. Billings. "The general government cannot interfere with police matters, and the only way in which it can touch the subject is through its rights to regulate commerce, and to protect the health of its Army and Navy, that is to say, by legislation and quarantine regulations.

"We have heard a good deal during the last few years about a National health bureau, and several bills have been introduced into Congress looking to the formation of such an institution. But such a bureau can do nothing except to collect information. . . .

"It is to State and Municipal boards of health, and to some organization yet to be devised which shall secure concerted action between these boards, that we must look for all positive and effective action in this matter."

Apparently, both these gentlemen were convincing to the members of the APHA for Dr. Woodworth won the highest vote and Dr. Billings the second highest for the two top places on the six-member executive committee.

That year the Association endorsed Dr. Billings' plan for a Sanitary Survey of the United States as something to be dealt with by the Government in the 1880 Census.

Financial solvency for the Marine Hospital Service was at last proclaimed by Dr. Woodworth in his annual report on the fiscal year 1876-1877. He led the report with the triumphant figures: collections, \$372,465.70; expenditures, \$368,395.28; surplus, \$4,070.42.

The next fiscal year, 1877-1878, Dr. Woodworth again reported a surplus and topped all previous records on all counts. Receipts were \$369,678.67, expenditures \$365,292.90; surplus, \$4,385.77. A total of 18,223 sick and disabled seamen were cared for, "the number exceeding by 1,415 the largest number relieved in any previous year."

On April 29, 1878, Dr. Woodworth got, in a reduced form, the National Quarantine Act for which he had been so long campaigning.



It gave authority for the Supervising Surgeon General of the Marine Hospital Service, subject to the approval of the President, to make rules and regulations governing the detention of vessels having cases of contagious disease on board or coming from foreign ports at which contagious diseases exist.

The advocates of State and municipal rights had won once more, by securing the insertion of a clause expressly stipulating that these rules and regulations must not "conflict with or impair any sanitary or quarantine laws or regulations of any State or municipal authorities."

The National Quarantine Act provided for the disease-intelligence system which Dr. Woodworth had urged. Consular officers in foreign ports were to advise the Supervising Surgeon-General regarding the appearance of contagious disease in any foreign port, or the departure of a vessel from such a port for the United States. The consular officers were required to make weekly reports to the Supervising Surgeon General on the sanitary conditions at the ports where they were stationed.

The Supervising Surgeon General was required to notify the local authorities at the port of destination regarding the departure of any vessel from an infected port; he was also required to prepare and transmit to the medical officers of the Marine Hospital Service, to Collectors of Customs, and to State and municipal health authorities in the United States weekly abstracts of the sanitary reports received from the consular officers, and other pertinent information.

This was the first authority for the publication now known as *Public Health Reports*. The first number, issued July 13, 1878, was titled: *Bulletin of the Public Health*.

Out in Chicago that year of 1878 the military uniform for the officers of the Marine Hospital Service was designed by Dr. Truman W. Miller, who later became editor of the *Journal of the American Medical Association*. A group of officers, including Dr. Miller, was photographed wearing this uniform. A handsome engraving of the Chicago Marine Hospital of that day, finished at last and opened for the reception of marine patients on the 17th of November 1873, was triumphantly included in Dr. Woodworth's second annual report.

In December, before 1878 ended, both Dr. Woodworth and Dr. Billings were among the sixty founders of the Cosmos Club, a social organization of outstanding scientists which ever since has added to the glamour of the Nation's Capital. So were Edward Miner Gallaudet, founder of the only college for the deaf in the world; Dr. Joseph M. Toner, whose Chart of Yellow Fever was a fold-in by Dr. John M. Woodworth in his second annual report as Supervising Surgeon; and Dr. Thomas J. Turner, U.S. Navy, who would become the strong ally of Dr. John S. Billings in his long fight against the Marine Hospital Service.

That year of triumph for Dr. Woodworth, 1878, was marked by a great epidemic of yellow fever which started in New Orleans and





Courtesy National Library of Medicine, PHS

Dr. Truman W. Miller, (seated in the center), Medical Officer in Charge of the Marine Hospital in Chicago, wearing the Service uniform which he designed. It was first worn in 1878. With him are fellow officers.

came up the Mississippi River. Petitions and individual appeals were made to President Hayes for a commission to investigate the epidemic. He had no funds to call upon for such an investigation.

A commission was made possible by a donation from a woman philanthropist, Mrs. Elizabeth Thompson, of New York. With the approval and advice of leading members of the APHA, the Yellow Fever Commission was organized the first of October, with Dr. John M. Woodworth as chairman. He swung into the investigation with such vigor he had a mass of information to present at the annual APHA meeting held in Richmond November 19 to 22.

"Four score cities and villages of the valley of the Mississippi were turned into mourning and a hundred thousand of the people were stricken in their homes and twenty thousand lives were sacrificed on the altar of preventable disease," he told the delegates on the opening day. He added that it would be their duty to sift the information gathered, single out the important facts, and establish the foundation on which "the theory and practices of preventive measures may surely rest."

But that was not the way the discussions of yellow fever, day after day, turned out. Dr. Billings was named head of a committee to consider

the work of the Yellow Fever Commission. He returned the Commission report to the Executive Committee with a recommendation that "the investigation should take a much wider range, since what is desired is to obtain, if possible, a knowledge of the cause of yellow fever—a knowledge which the most complete history of the epidemic which can be made will not be able to furnish." He said that deep microscopical research was needed, that it should be done at a time when no epidemic was raging, and that Havana, Cuba, would be the best place to do it.

The members of the Yellow Fever Commission withdrew their reports from the proceedings. A note was inserted in them, saying that Congress, when it convened in December, had supplied \$50,000 to continue the investigation and had provided for the publication of the results.

An elaborate vote of thanks was adopted to Mrs. Elizabeth Thompson, of New York.

James L. Cabell, M.D., Professor of Comparative Anatomy, Physiology, and Surgery, of the University of Virginia, Charlottesville, Virginia, was elected president of the APHA in that 1878 meeting, and John S. Billings, M.D., Surgeon U.S. Army, was elected first vice-president.

The stage definitely was set for the future ascendancy of Dr. Billings, and the rest of the convention went his way. The APHA accepted the report of its Committee on Resolutions that it was "inexpedient and unwise to commit the Association at this critical period of public agitation on kindred topics to any definite form of organization of a public health service."

Instead, the Association set up an advisory Committee on Legislation, with one member from each State and several from the National Government, "empowered to secure the legislation necessary to the organization of an adequate public health service in the general government." This broad committee was instructed, however, merely to advise the APHA Executive Committee by which it would be appointed. The Executive Committee was given authority to act during a session of Congress. This entire set up, which put Dr. Billings, APHA vice president, and a resident of Washington, D.C., in charge of legislative lobbying, boded ill for Dr. Woodworth and his plans.

However, Dr. Woodworth had, in December 1878, a last small glimmering of triumph in the annual report of John Sherman, Secretary of the Treasury. The Treasury report told of the second Marine Hospital Service surplus, and of the fact that more seamen had been helped at less money per person than ever before.

"At the same time the character of the relief offered has been steadily improving," said Secretary Sherman. He added:

"The National Quarantine Act, with the execution of which the Surgeon General is charged, was passed so late in the last session of Congress that the appropriation necessary to carry out its

provisions could not be made. Notwithstanding this fact, everything has been done under the Act which could be accomplished without the expenditure of money.

"By the aid of a voluntary contribution an investigation as to the cause of the yellow fever epidemic of 1878 has been undertaken under the direction of the Surgeon-General, by a commission of experts, whose reports will be submitted to Congress."

The rest of the road was downhill for Surgeon General Woodworth. He kept fighting to set up a Bureau of Health in the Federal Government which would have at its head a single Director General, and would include the Marine Hospital Service and use its official machinery. But he knew before it happened that he was doomed to defeat by Dr. John S. Billings and his American Public Health Association and other proponents of a National Board of Health.

The accuracy of Dr. Woodworth's knowledge and the thoroughness of Dr. Billings' campaign against him, were but recently re-discovered through the finding of a memorandum written by Dr. Billings in the Toner collection in the manuscript division of the Library of Congress. The date of the Billings memo was February 25, 1879, just one week before the National Board of Health was created during the night of March 3, 1879, in the closing hours of the Congress.

Dr. Billings quite obviously did not intend to leave this record, for his memorandum ran:

"Private and Confidential

Washington, D.C.

February 25, 1879

"Dear Dr. Toner

"You have of course seen the interview with Woodworth in this morning's *Post*. I think it ought to be answered, and by you as Chairman of the Advisory Committee.

"I enclose a rough memo of one or two points, as suggestions merely.

"It is not impossible that a *Post* man will look you up today.

*"Don't part with the memo I send you but destroy it."*

Very sincerely yours

J. S. Billings"

Billings' two-page attachment, expressing to Dr. Toner his deep animosity for Dr. Woodworth, was not destroyed. It ran as follows:

"Memo on account of interview with Surgeon General Woodworth in the *Washington Post* of Tuesday, February 25.

"1. Dr. W. Says he 'felt willing to be legislated out of office in the interest of public health.' To those who know the facts in the case this is sublime in its impudence. Since the middle of last summer, Dr. Woodworth has been steadily lobbying to have himself

Frederick & Augustus

Washington D.C.

Feb 25<sup>th</sup> 1879

Dear Dr. Jones.

You have of course seen  
the interview with Woodward in this  
Evening Post. I think it ought  
to be answered, and by you as  
Chairman of the Advisory Committee.

I enclose a rough memo of one or two  
points, as I suggest merely.

It is not impossible that a Post  
man will look you up to day.

Don't put with the memo I send you  
but destroy it.

Very sincerely yours  
J. S. Billings

D. J. M. Jones.

Courtesy Library of Congress

Three pages in the handwriting of Dr. Billings, taken from the Toner Collection at the Library of Congress, show how bitterly he battled Dr. John M. Woodward to get the law passed authorizing the National Board of Health.



Mem on account of interview with Surgeon General  
Woodworth in The Wash Post of Tuesday Feb 25.

- 1 Dr W says he "felt willing to be legislated out of office  
in the interest of public health. To those who know the  
facts in the case this is sublime in its impudence.  
Since the middle of last summer Dr Woodworth has  
been steadily lobbying to have himself made Director  
General of Public Health and has been using his  
subordinates in the Marine Hospital Service unsparingly  
to that end. As he has one of these in every large Custom  
House in the Country - ~~it is~~ he has very considerable  
power in this way, and power which he wishes to retain  
as Director General, for which reason he provides for  
transferring the Marine Hospital Service to his new office.
- 2 Dr W while not directly asserting it as a fact, implies  
that the American Public Health Association is opposed to  
a Public Health Measure. This is untrue. The  
Association is opposed to his measure, for a number of  
reasons, among which are that it does not wish to see the  
Public Health interests of the Country connected with  
politics, or placed in the hands of men who have given

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No evidence of special knowledge in Sanitary Subjects.

Dr W - objects to the proposal to refer the question of a National Sanitary Organization to the National Academy of Sciences on the grounds that this body only contains two or three Sanitarians. But he is unwilling to abide by the opinion of the American Public Health Association which contains every prominent and practical Sanitarian in the United States. And why? Simply because these Sanitarians are of the opinion that Dr Woodward is not a proper person to be selected to rule over them or to be entrusted with such important interests as those he is seeking to grasp.

The Commission employed by Dr Woodward and by the Congressional Committee are not in opposition to the Public Health Association as Dr W insinuates.

We have reason to think that neither of these Commissions would wish to see the Marine Hospital Service of the Treasury Department with its political connections and ramifications, and especially with its present Supervising Surgeon General, turned into a Bureau of Health for the Nation.

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"2. Dr. W. while not directly asserting it as a fact, implies that the American Public Health Association is opposed to a Public Health Measure. This is untrue. The Association is opposed to *his* measure for a number of reasons, among which are that it does not wish to see the Public Health interests of the Country connected with politics, or placed in the hands of men who have given no evidence of special knowledge on sanitary subjects.

"Dr. W. objects to the proposal to refer the question of a National Sanitary Organization to the National Academy of Science on grounds that this body only contains two or three Sanitarians. But he is unwilling to abide by the opinion of the American Public Health Association which contains every prominent and practical sanitarian in the United States. And why? Simply because those Sanitarians are of the opinion that Dr. Woodworth is not a proper person to be selected to rule over them or to be entrusted with such important interests as those he is seeking to grasp.

"The Commission employed by Dr. Woodworth and by the Congressional Committee are not in opposition to the Public Health Association as Dr. W. insinuates.

"We have reason to think that neither of these Commissions would wish to see the Marine Hospital Service of the Treasury Department with its political connections and ramifications, and especially with its present Supervising Surgeon General, turned into a Bureau of Health for the Nation."

The interview with Dr. Woodworth was easily found on the front page of the *Washington Post*, but if Dr. Toner ever replied to it, his words could not be found in the immediately succeeding issues. Dr. Woodworth predicted in the *Post* that the bill for a Bureau of Health doubtless would pass the Senate with very little opposition. He made a strong plea for this bill, favored by the Congressional Yellow Fever Commission which he headed. It had been introduced by Senator Isham Green Harris, of Tennessee, Chairman of the Senate Committee of Epidemics. It did pass in the Senate.

Dr. Woodworth warned in the *Post*, "when it reaches the House it seems probable that all but the title will be stricken out and the House bill substituted."

The House bill, introduced by Representative Jonas Hartzell McGowan, of Michigan, would set up the National Board of Health as urged

by Dr. Billings and the American Public Health Association.

The House bill was substituted, exactly as Dr. Woodworth had predicted.

In his effort to win with the Senate bill, Dr. Woodworth had consented that it be keyed as closely as possible to the House bill and still keep National authority. It even included an advisory board of health.

He explained in the *Post* that the Senate bill provided for a Bureau of Health, to include the Marine Hospital Service and the public health laws which then devolved upon the Surgeon General of that service. It also made provision for sanitary supervision of commerce between States in time of epidemic. The advisory board of health which would be created by it would prepare all regulations to be enforced by the Director-General of Health.

"The bill also provides that the office of general of the Marine Hospital Service be abolished," Dr. Woodworth pointed out to the *Post* reporter. "This provision grew out of my own suggestion, based upon a belief that an additional bureau would not meet with favor at this time, and, as most of the machinery already exists in the Marine Hospital Service for the execution of the public health act, I felt willing to suggest being legislated out of office in the interest of public health."

Dr. Woodworth said that the House bill would create a new Bureau, "to consist of a board of nine members as an executive body" with duties "nearly the same as provided by the Senate bill." He said that the opposition to the Senate bill came from two sources: "first, the American Public Health Association; and second, the supposition that somehow the rights of the State will suffer if the country is protected by the General Government against the importation of epidemic diseases."

Eleven days after the Board of Health was voted as a last-minute act of an expiring Congress, Surgeon General John M. Woodworth was dead at age forty-one.

Four prominent preachers conducted his elaborate funeral services held at the home of Andrew Langdon in Le Droit Park on Fourth Street, near Freedmens Hospital, Washington, D.C. President Hayes attended with his son Webb. Mrs. Hayes, wife of the President, sent a floral piece, "a large crown surmounted by a cross of immortelles and violets and an anchor." Secretary Sherman was there. The members of the Yellow Fever Commission attended.

The night before the funeral service, the Yellow Fever Commission met and passed a resolution regarding Dr. Woodworth to be presented to the widow and to the press. It read in part: "Resolved, that as an associate he was gentlemanly, courteous, self-sacrificing, and gave the fullest measure of his ability and influence to the success of the aims and objects of this Commission, and that he fell a soldier in the sacred cause of humanity, his large heart and brain being enlisted in the



promotion of such legislation as would nationalize sanitary science, and prevent the introduction and spread of contagious disease."

All who were interested in public health, regardless of their stand on a National bureau of health, were working for Nationwide, uniform reporting of the cause of every death. Yet no record was left of the cause of Dr. Woodworth's death. A Nashville, Tennessee, medical journal said it "is probably owing more to overwork than any special disease."

His successor, Dr. John B. Hamilton, merely said in the next annual report of the Marine Hospital Service: "The medical corps has sustained the loss of two officers by death during the year—Surgeon General John M. Woodworth, on March 14, 1879, and Assistant Surgeon Roswell Waldo, October 18, 1878. The death of Assistant Surgeon Waldo was caused by yellow fever contracted in the line of duty during the epidemic of 1878."

However, in March of 1884, Dr. Hamilton made some bitter remarks on Dr. Woodworth's death, to a public health committee on Capitol Hill. He was answering the argument of Dr. Stephen Smith, that, with the death of Woodworth, "all opposition ceased" to the National Board of Health.

"He might have said that Doctor Woodworth's death was the result of persecution," testified Dr. Hamilton, "that he was hounded to his grave by some of the same 'sanitarians' who became the temporary beneficiaries of that cessation of opposition."



## Chapter 7:

### SERVICE SINKS BOARD'S REFRIGERATION SHIP

Surgeon General John B. Hamilton

1879-1891

(Part One)

The career system for medical officers set in motion by Supervising Surgeon-General John M. Woodworth really worked. He was succeeded by Dr. John B. Hamilton, the career officer who had passed with the highest grade among fifteen physicians taking the examinations in 1876. Then had come his remarkable record of improving the Marine Hospital Service hospital at Boston, Massachusetts.

With no experience in National affairs, Dr. Hamilton took over as Supervising Surgeon-General on April 3, 1879. The day he took the oath of office he was confronted by the opposition of a group of the most powerful physicians in active politics—the National Board of Health. Just the day before, on April 2, 1879, one day less than a month after this Board was created by a dying Congress, its newly-appointed members met and organized in Washington, D.C.

That night, Dr. John S. Billings, the man elected vice-president by the Board, held at the old Ford Theater, his headquarters in his Army post, the first meeting of the smaller Executive Committee through which he would function. There, in a surprise move, he unfolded his own four-page plan to increase the Board's appropriation ten times, and to take from the Marine Hospital Service and give to the National Board of Health the 1878 Quarantine law which not only set up a National quarantine system—if requested by States and cities—but also provided for gathering information on the outbreak of contagious disease in foreign countries and for the regular publication of such information in this country.

The National Board of Health, by law, consisted of seven physicians, no two from any one State, and a representative of the Army, the Navy, the Marine Hospital Service, and the Department of Justice.

The members chosen from the States, who would receive \$10 a day and expenses when on duty were: Dr. Henry I. Bowditch, of Boston, Massachusetts; Dr. Samuel M. Bemiss, of New Orleans, Louisiana; Dr. James L. Cabell, of the University of Virginia, at Charlottesville; Dr. Hosmer A. Johnson, of Chicago, Illinois; Dr. Robert W. Mitchell, of Memphis, Tennessee; Dr. Stephen Smith, of New York; and Dr. Truillio S. Verdi, of Washington, D.C. All were leaders in the American Public Health Association or in the American Medical Association, or in both.



Courtesy National Library of Medicine, PHS

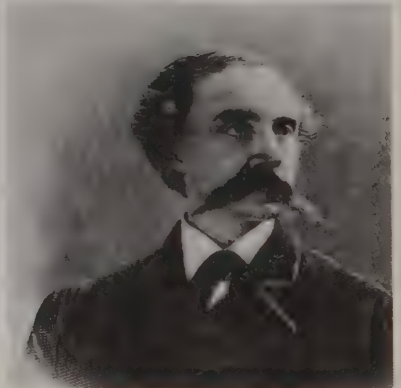
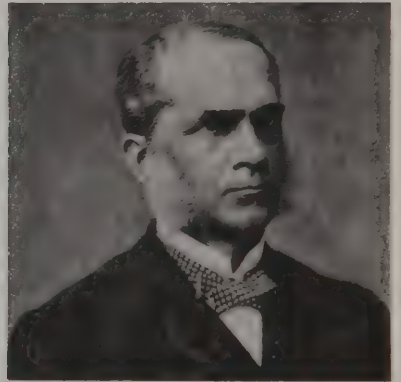
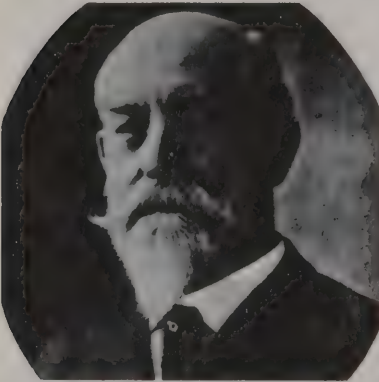
Dr. John B. Hamilton, the second Supervising Surgeon General of the Marine Hospital Service, immediately was confronted by a bureaucratic battle with the just-established National Board of Health, created and manipulated by Dr. John S. Billings, of the Army Medical Service.





Courtesy National Library of Medicine, PHS

Dr. James L. Cabell, of Virginia, President of the National Board of Health.



Courtesy National Library of Medicine, PHS  
Johnson photograph Courtesy Northwestern University

Other non-governmental members of the National Board of Health, no two of whom could come from any one State.

Dr. Samuel M. Bemiss, La.  
Dr. Henry I. Bowditch, Mass.  
Dr. Hosmer A. Johnson, Ill.

Dr. Robert W. Mitchell, Tenn.  
Dr. Stephen Smith, N.Y.  
Dr. Tullio S. Verdi, D.C.

Dr. Verdi had been a controversial figure. He was the homeopathic doctor who was personal physician to Secretary of State William H. Seward when he was attacked and seriously wounded by one of President Lincoln's assassins. Dr. Verdi had exploited this episode by writing for the May 15, 1865, issue of the *Western Homeopathic Observer* an article titled: "Full Particulars of the Attempted Assassination of the Hon. Secretary Seward, his Family and Attendants." This had aroused a rage among medical men who were not homeopaths. They termed Dr. Verdi "a traitor to the profession—a quack." Dr. Hamilton marked Dr. Verdi as one of the weaker links in the National Board of Health chain now appearing to be preparing to manacle his own Marine Hospital System.

The representatives appointed to the National Board of Health from the Government agencies were: Dr. Preston H. Bailhache, U.S. Marine Hospital Service; Dr. John S. Billings, U.S. Army; Dr. Thomas J. Turner, U.S. Navy; and Samuel F. Phillips, Department of Justice. These members served without extra pay, the service being regarded as part of their regular Federal jobs.

Dr. Cabell, elected president, and Dr. Billings, vice-president, held precisely the same posts on the National Board of Health that these two physicians held in the American Public Health Association. Dr. Turner, a Navy officer with great powers of verbal expression, was elected Secretary. The Executive Committee consisted of these three officers and also Dr. Stephen Smith, Dr. Bailhache, and Mr. Phillips.

As originally legislated by Congress, the National Board of Health was charged with carrying out glittering generalities, and its enabling act carried an appropriation of only \$50,000. It was to:

Frame all rules and regulations required to prevent the introduction of infections or contagious diseases in the United States;

Make such special investigations as the members deem best at any place in the United States or at foreign ports;

Obtain information on all matters affecting the public health, and give advice on this subject to all questions submitted by government departments and executives of the States;

Report, with the assistance of the Academy of Science, to Congress at the next session a plan for a national public health organization, "special attention being given to the subject of quarantine, both maritime and inland, especially as to regulations which should be established between State or local systems of quarantine and a national quarantine system."

Vague as these powers were, Dr. Billings, who had drafted them, interpreted them as authorizing specific scientific investigations he had in mind. They soon developed into the first Federal grants for medical research ever channeled into colleges and universities. However, Dr. Billings had a far larger program in mind.

The business the Executive Committee had to transact at its first

meeting was merely the voting of a printing order for a circular notifying physicians and others of the establishment of a National Board of Health. When this had been taken care of, the minutes of this meeting stated, "Dr. Billings submitted the following memoranda"—four pages of closely-written script.

The memoranda of Dr. Billings began: "With regard to legislation, it is recommended that Congress shall appropriate funds to aid and assist State and local Boards of Health as contemplated in the original bill. The clause for that purpose passed the House, but by a clerical error did not get to the Senate."

He stated precisely how this clause should read, specifying the appropriation at five hundred thousand dollars, to be made a part of the law, the first grants-in-aid system of the Federal Government.

"The result of this will be a powerful stimulus to State and local sanitary organizations which are actually to enforce and execute the proper regulations for the prevention of disease," Dr. Billings said.

He termed it "highly desirable that all gentlemen specially qualified as sanitarians should be in some way or other employed by the Board upon some of the many problems which are crowding upon its attention."

He proposed that there be "some manual by which the National Board of Health can avail itself of the services of men already in government employment, receiving no additional compensation."

"It is very desirable," said Dr. Billings, "that the duties imposed by the Act approved April 9, 1878, entitled: 'an act to prevent the introduction of contagious diseases', should be transferred to the National Board of Health."

This was, of course, the Quarantine Act which Dr. Woodworth had fought for and won for the Marine Hospital Service, only to fail to get the appropriation which would have put it fully into effect.

"The National Board of Health should receive through the Department of State all the reports of consular officers called for in the Act, or by Senate bill 108 of the present session," continued Dr. Billings. This would be outright confiscation of Dr. Woodworth's epidemic reporting service.

"The National Board of Health should be in close correspondence and communication with all local sanitary organizations and health authorities by whatever name called in all parts of the world, and should classify, digest and publish this information in bulletins at first weekly, and hereafter, perhaps, more frequently," he added.

He said that at least \$20,000 should be set apart for the investigation in Havana of causes of, and conditions affecting, the yellow fever.

He recommended a special investigation of the adulterations of food and drugs in this country.

This amazing document was one of the many masterpieces of a man who, in 1879, was sweeping toward the zenith of his powers. That year



Dr. Billings not only took on the direction of the National Board of Health, but also its lobbying on Congress as the vice-president resident in Washington, D.C. He also had these projects on hand:

An effort, soon successful, to secure a new fire-proof building for the Army Medical Museum and Library at Ford Theater which he headed. At that time the Library had 52,000 volumes, and 57,000 unbound pamphlets.

As librarian for the Surgeon General of the Army, Dr. Billings was responsible for the compilation of the first volume of the *Index Catalogue*, the first comprehensive bibliography covering medical literature from A to Berlinski, a quarto of 888 pages.

The monthly publication of the important *Index Medicus*, the first issue being January 31, 1879, to give physicians a classified record of the current medical literature of the world, month by month.

Preparation for the gathering of vital statistics in the tenth decennial Census, to be taken in 1880, the second of four decennial Censuses in which Dr. Billings had an important role. He had been asked for assistance in the 1870 Census in determining the classification of diseases causing deaths.

He was serving as vice-president of the American Public Health Association, and as chairman of an important committee of the American Medical Association.

Upon him was the task of the construction and organization of the Johns Hopkins Hospital, Baltimore, Maryland, for which Dr. Billings had been named designer in 1875. He continued to serve as medical advisor to Johns Hopkins until 1889. He personally picked two of the physicians who made this institution world famous—Dr. William H. Welch, and Dr. William Osler.

While he was doing all these things and many more, Dr. Billings held the Army rank of brevet lieutenant colonel—which meant that his rank was higher than his pay which remained that of a major. When the day came—May 7, 1889—for the dedication of Johns Hopkins Hospital, Dr. Billings had had no raise in pay. His daughter, the late Margaret Janeway Billings, recalled as to this event: "We all took the streetcar from Georgetown to the B & O RR station, a family of seven. Father, on a Major's pay, could not afford the luxury of owning, or hiring, a carriage."

Dr. John B. Hamilton, coming into Washington to find the two principal titles of the Marine Hospital Service quarantine law about to be snatched away by Congress to be given to the Board of Health, must have looked upon Dr. Billings as a formidable foe.

However, Dr. Billings and the other members of the Board of Health might have found it to their profit to have made a more careful appraisal of Dr. Hamilton, whom they considered an innocuous neophyte, as he didn't even belong to the American Public Health Association.

The Scotch family into which Dr. Hamilton was born in Jersey County, Illinois, had taken literacy with them from Massachusetts to the Mississippi Valley. They founded a country academy, with classic courses started by Professor John Grant, a learned teacher from Edinburgh. John B. Hamilton received his early education at this Hamilton School.

As a boy, he worked on the farm, and in the printing office. At the age of sixteen, he entered the office of Dr. Joseph O. Hamilton as a student of medicine. At seventeen, he entered G Company, 61st Illinois Regiment, and served throughout the Civil War, thus learning at an early age the fundamentals of military life and discipline.

When the war ended, he entered the Rush Medical College in Chicago, Illinois, and was graduated three years later with high honors. He went into private practice in his native county, but soon decided on a public career in medicine. He returned to the Army as an Assistant Surgeon in 1874, serving at Jefferson Barracks, Missouri, and at Fort Colville, Washington. Then came his appointment to the Marine Hospital Service. After only a year in that Service, in July 1877, Dr. Hamilton was put in charge of the oldest and most honored Marine Hospital, that of the Port of Boston, Massachusetts.

At Boston, he was confronted with a sewage problem which he personally described in a twenty-year summary of the hospital which he wrote for Dr. Woodworth in 1878. When the hospital for the Boston port was built at Chelsea, Massachusetts, he said, the main sewer which received all wastes ran under the center of the basement floor and emptied into a salt marsh about 1,800 feet from the building with a fall of about fifty feet. However, the city of Chelsea divided the marsh with a dike, the bordering land being sold to people who built tenements and the settlers complained of the sewer. It was so poorly connected to the city system that "the gas sought an exit in every crevice, escaped into the basement, and by means of the waste-pipes into every room in the building."

The Boston Marine Hospital had, in consequence, a major medical problem—erysipelas set in after almost every surgical operation, he said. There were not a large number of deaths from it, but the illnesses of scores of men were prolonged by it.

Dr. Hamilton had all the patients moved up to the third floor of the hospital, opened the doors at the end of the halls whenever weather would permit, and let the winds sweep through. He then attacked the water closet rooms.

"All old woodwork, plastering, floors and pipes were removed," reported Dr. Hamilton. "The floors were reconstructed of polished slate and relaid on Portland cement and plaster of Paris. The 'mop boards' were made of the same material and set in the same manner, thus making a water-tight and easily-cleaned floor . . ."

The account of the remodeling ended with this triumphant paragraph:

"While there is still much to be done to perfect the drainage and ventilation, yet for the last year not a single case of erysipelas has originated in the hospital, and not a single wound or operation has been followed by any bad symptom."

In this 1878 article on the Boston hospital, young Dr. Hamilton advocated a system of physical examination of sailors, and of keeping off the ships those who were found to be "unseaworthy."

"The physical examination of seamen, and a local registration of the abandoned women on shore, would do for syphilis what the enforced introduction of lime-juice has done for scurvy, practically eliminated it from the list of diseases to which sailors are liable," he said. "Not a single case of scurvy was admitted to this hospital during the past year."

The success of this document, which brought him to Washington as Supervising Surgeon-General, undoubtedly inspired him to further literary labors. He wrote a history of the entire Marine Hospital System for the 1879 edition of the *Appleton Cyclopedia*, published in Boston, Massachusetts.

Dr. Billings drove unremittingly forward on all of his objectives for the National Board of Health. The entire Board met eight times in its first year, once in Atlanta, once in Nashville, and six times in Washington, D.C.

The Executive Committee met almost daily in Washington, taking bold steps for later Board approval, most of them instigated by Dr. Billings.

"It is recommended" or "it is ordered" Dr. Billings would say for Dr. Turner to take down in the minutes of the Executive Committee meetings which are preserved in bound volumes at the National Library of Medicine. Then Dr. Billings would set forth some needed improvement on the health front, specifying where the letter on the subject should go. He would then dictate a letter to the person or persons who had the power to make the reform—the President of the United States, a member of his Cabinet, the chairman of a committee of Congress, or a State or local Board of Health. An amazing number of health advances were made in this way.

A yellow fever commission to Havana was organized along the lines Dr. Billings had laid down in his report to the American Public Health Association on the Woodworth committee study. Chosen to go to Havana for the yellow fever study were Dr. G. M. Sternberg, a medical officer of the U.S. Army, and later Surgeon General of the Army; Dr. S. E. Chaille, of New Orleans, Louisiana; Dr. Juan Guiteras, of the Medical School of the University of Pennsylvania; and T. S. Handler, civil engineer. They not only studied diseased tissues with the microscope, but also reported on the actual sanitary conditions of the principal Cuban ports from which shipments were made to the United States.

Dr. Carlos Finlay, Cuban yellow fever expert, was appointed by the Spanish Governor General to work with this United States Commission.



Their microscopic studies in 1879 changed his entire way of thinking. Dr. Finlay had made many speeches saying this fever was caused by alkalinity in the air. Because he noted changes in the blood vessels in microscopic studies, Dr. Finlay turned to mosquitoes as its vector—a position he continued to take until it was scientifically proven by Dr. Walter Reed.

All Dr. Finlay lacked to prove his case against the mosquito was the theory of the extrinsic incubation period—the time required to develop the disease in the mosquito—which Dr. Henry R. Carter, of the Marine Hospital Service, developed and put into the hands of Dr. Walter Reed and his helpers. The man who started this chain reaction was Dr. Billings.

Elaborate negotiations were begun with the National Academy of Sciences to carry out the provisions of the law creating the Board of Health with regard to recommending a permanent Federal agency for public health. Dr. Billings was one of the negotiators. As he undoubtedly intended, these negotiations before too long ended with the verdict that the National Board of Health was precisely the right type of Federal health agency and should continue.

"The law as it now stands does not recognize the existence of an executive committee," complained the first annual report of the National Board of Health, "and hence it has been necessary to convene the full board to consider questions which the executive committee should have power to dispose of." This report urged that the committee be given more power, but Dr. Billings continued to function on the system of having to obtain Board approval. At times it was even necessary to get a special act through Congress.

Because yellow fever apparently came into this country on infected ships in the summer, and died out with the advent of frost, Dr. Billings became convinced that a refrigeration ship should be constructed for the use of the National Board of Health.

Dr. John Gamgee, a British veterinarian, brought to this country from London an elaborate plan for his own invention of a refrigeration ship. He expounded the theory that such a ship could be used to treat incoming ships infected with yellow fever by chilling the cargo and the clothing of crew and passengers, thus killing whatever it was that caused yellow fever.

This was a by-product of Professor Gamgee's appearance here as an author. The United States Department of Agriculture had published a book by Professor John Gamgee and others on the diseases of cattle in the United States, including the 1868 epidemic of Texas fever. To the British report was added a special investigation by Dr. John S. Billings and Dr. Edward Curtis, both of the U.S. Army. From microscopic studies they had concluded: "In the contagious pleuro-pneumonia of cattle there is no peculiar fungus germ present in the blood or secretions."



As one of Professor Gamgee's co-authors, Dr. Billings became enough interested in the idea of a refrigeration ship to get it accepted by the National Board of Health and by Congress. Naturally United States refrigeration experts were eager to enter into competition with the plans of Professor Gamgee.

On April 18, 1879, Congress passed an Act "to authorize the Secretary of the Treasury to contract for the construction of a refrigeration ship for the disinfection of vessels and cargoes" with a \$200,000 appropriation for that purpose. All plans for the refrigeration ship were to be presented to the National Board of Health.

The very next day Dr. Billings was in action, full speed ahead. The Executive Committee ordered letters sent to all the competitors, requesting each "to state in writing precisely what they propose to do and at what cost." Specific were the questions put. As instance: "Will the apparatus proposed be capable of reducing the temperature of the atmosphere of a 1000-ton ship, free of cargo, at New Orleans, Louisiana in July to 0 degrees Fah., if not, to what temperature and in what time?"

At the April 29th Executive Committee meeting, Dr. Billings moved that the President of the National Board of Health, Dr. Cabell, be directed to request the Secretary of the Navy to convene a Board of Navy officers to consider the questions of engineering involved. Dr. Cabell wrote the letter the next day, April 30, and on May 2, Secretary Thompson appointed a Navy board to go over all plans for the refrigeration ship.

Chief Engineer David Smith, Assistant Engineer William A. H. Allen, and Naval Constructor William L. Mintonys reported to the National Board of Health headquarters, 1405 G Street, to study the plans of the twenty-two firms competing for the contract.

However, Dr. Billings had to be in Atlanta, Georgia, from May 5 to 8 to deliver the "Address in State Medicine and Public Hygiene" at the annual meeting of the American Medical Association, and also to attend the special meeting of the National Board of Health which he personally had arranged to be held simultaneously with the AMA meeting.

Dr. Billings appealed to the delegates at the American Medical Association for the cooperation of all physicians in two of his most pressing Federal problems, the National Board of Health and the 1880 Census.

"As the plague induced the rulers of continental Europe to establish sanitary organizations as part of government, and as cholera effected the same in England, so now the third great plague of modern times, the yellow fever, may have done the same for the United States," he said of the National Board of Health.

As to the Census, he advised that each physician "commence on the first of June keeping a list of all cases of death which occur in his practice, noting name, age, sex, and cause or causes of death."

Apparently the conflict in Congress between the National Board of Health and the Marine Hospital Service caused enough commotion in Atlanta for Dr. Bailhache to wire his Supervising Surgeon-General in Washington, D.C., a question about it. On May 7, 1879, Dr. Hamilton wired back to Dr. Bailhache in Atlanta: "Am ignorant of opposition from Service but aware of opposition to it from other parties." This telegram was recently found in the papers of Dr. Billings in the New York Public Library.

Dr. Billings got all he asked for and more in a law passed by both Houses late in May and signed by President Rutherford B. Hayes on June 2, 1879. He got his \$500,000; his quarantine powers; his Havana Yellow Fever Commission; his investigation into the adulteration of food and drugs; his promotion of State and local boards of health; his State Department reporting system on foreign epidemics—and the *Bulletin of the Marine Hospital Service* became the *National Board of Health Bulletin* with Dr. Billings as its editor.

This Act was, except for its last sentence, exactly in accordance with the four-page memorandum Dr. Billings had presented at the first session of the Executive Committee of the National Board of Health.

The final—and fatal—sentence read: "This act shall not continue in force for a longer period than four years from the date of its approval."

This terminal date was the result of Congressional debate, some of it, no doubt, inspired by Dr. Hamilton who did not attend the AMA meeting in Atlanta, Georgia.

Dr. Billings, as usual, had kept ahead of the game. At a meeting of the Executive Committee on May 29, three days before the Act was signed, it was ordered at his suggestion:

"That the Secretary be directed to address a letter to the Supervising Surgeon General of the Marine Hospital Service requesting for the temporary use of the Board the loan of any quarantine regulations of separate ports or local regulations which he may have collected.

"That the Secretary of the board be directed to forward a committee to the Supervising Surgeon General of the Marine Hospital Service notifying him of the proposed meeting of the Board on Tuesday next, stating that in case the Bill which has recently passed both Houses be approved by the President and become a law, etc., the Executive Committee of the Board desires to consult at once with him as to his views in regard to carrying out the law; that they wish to obtain the benefits of the experience which he has gained in the carrying out of the former law, to receive his suggestion as to the course which should now be taken, to see the blanks and forms which are now in use and to obtain such aid, assistance, and counsel as he is willing to furnish the Board."

Dr. John B. Hamilton, the Supervising Surgeon-General of the Marine Hospital Service, chose to disregard this summons. Dr. Hamilton went instead to the Secretary of the Treasury, John Sherman.

When the National Board of Health met the day after their quarantine law was signed, quarantine officers were appointed for the entire coast. Those for the Southern ports were immediately put on duty as follows: "Dr. Wirt Johnson, from the mouth of the Mississippi River to Galveston; Dr. Pope, from Galveston to Rio Grande; Dr. Cochran, from Key West to Pensacola; Dr. Palmer, from Pensacola to the mouth of the Mississippi River, Dr. Elliot, from Key West to Brunswick to Norfolk."

Just before adjourning this meeting in Washington, D.C., which lasted from June 3 to 17, the National Board of Health ordered that its president, Dr. Cabell, address a letter to the Secretary of the Treasury recommending the construction of the refrigeration ship proposed by John Gamgee—the choice of the Navy Board.

This brought about such a clamor of protest from other bidders that the Senate, on June 23, passed a resolution directing the Secretary of the Treasury to report to it all actions as to the refrigeration ship taken by the National Board of Health. The Secretary was also instructed to send to the Senate copies of all letters received concerning the refrigeration ship. All the documents in the whole complicated controversy were to be published as *Senate Document No. 33*, 45th Congress, first session. One of the letters showed that the Secretary of the Treasury had referred the entire matter of the refrigeration ship for final decision to Dr. Hamilton as Surgeon General of the Marine Hospital Service.

Dr. Hamilton correctly figured he had now drawn the first blood—and he chose that very day—June 23—to make his confrontation of the National Board of Health, but not precisely as he had been invited to do less than a month before.

The story of that confrontation as told by Dr. Turner has lain, unnoticed, for almost half a century in a letter included in the Billings papers at the New York Public Library.

On National Board of Health stationery, under date of June 23, 1879, with the heading "*Confidential*," Dr. Turner, Secretary, wrote Dr. Billings, vice-president, then ill and away on a rest cure, this startling statement:

"Hamilton came in this morning with a letter from Sherman." Dr. Turner went on to say that the letter from the Secretary of the Treasury had said that the quarantine rules on which the Board had asked for the opinion of Hamilton had been referred to the Secretary of the Treasury. Sherman had asked Hamilton himself for the correct answers and then had put Hamilton's suggestions as to quarantine rules before a session of the President's cabinet. They had been approved by the Cabinet.

Dr. Turner interpolated his own explanation of how helpless the Board was in dealing with Dr. Hamilton. "You see that Bailhache has



an office in Hamilton's branch and there is nothing that goes on but is posted—and he of course knows every card in our hand and in his own also—I see very clearly that they propose to run or break up this Board—



Courtesy Public Health Service

Dr. Preston H. Bailhache, who, as a young man, was the Marine Hospital Service member of the National Board of Health. Of him Dr. Thomas Turner, the Navy member, complained to Dr. John S. Billings, the Army member, "Bailhache has an office in Hamilton's branch and there is nothing that goes on but is posted—he knows every card in our hand and in his own also."



"If—Oh Lord how I wish you were here to give me the benefit of your clear head in these matters."

Dr. Turner included a newspaper clipping telling of the Senate action calling in all letters on the refrigeration ship. His letter went on:

"The present outlook isn't pleasant at all. I can manage well enough the work, but I'll be damned if I want any other people than the Board to run the machine office orders. It isn't my idea to have this an appendix vermiformis to the guts of the Hospital Service at all.

"I'd give a month's pay to you, poor as I am, if you were only well and up to your fighting weight. I don't see much prospect of it just now, and if you give this up, so will I at once, and so will Cabell, Bowditch, and Mitchell. . . . I want your advice, counsel, and aid."

The story of what probably was this same confrontation as told by Dr. Hamilton appeared in testimony on Capitol Hill four years later.

He read to a House Committee the letter he had received from the National Board of Health as it organized, asking him to come in and give "the results of the experience which the Marine Hospital Service had gained in the execution of the former law."

He said that the first regulations of the Board under its quarantine act "were submitted to the President of the United States and to the Secretary of the Treasury to me for opinions."

"I gave an opinion criticizing their regulations, showing they were so loosely drawn they would not answer their purpose," testified Dr. Hamilton.

He said that President Hayes had sent for him, and had requested him to go and read this critical letter to the National Board of Health, which he did.

"They accepted all but two suggestions, and they were finally obliged to add one of these to their regulations," he said.

The doom of the refrigeration ship was obvious in the published Senate Document. A letter of June 18, 1879, fixing the final responsibility of decision on Dr. Hamilton was addressed to him, not to the Secretary of the Treasury, who by law was to contract for building the ship, nor to the Board of Health, for whom it would be built. It was from Samuel C. Reed, of New York, president of the United States Ice and Refrigerating Company, a disappointed bidder, charging that the Gamgee plan would violate two patents held by his company.

"The representative of this company, Mr. George O. Jones, now in Washington, will lay before you the objections existing to the adoption of the plan proposed by the said John Gamgee," Mr. Reed told Dr. Hamilton.

"But I hereby most earnestly and solemnly protest against any approval on the part of the honorable, the Secretary of the Treasury, *or yourself to whom, the Secretary informed me, he would entirely refer it*, of that part of the said John Gamgee's plan by which he proposed

to use ammonical gas liquefied by mechanical compression for the purpose of producing cold."

The most bitter complaint preserved in the Senate report came from Professor John Gamgee. He wrote to Dr. Thomas J. Turner, Secretary of the Board of Health, that he had called in company with Senator Isham G. Harris, of Tennessee, author of the legislation for the refrigerator ship, on Secretary of the Treasury Sherman the day before.

"Mr. Sherman informed us he was about addressing a letter to the National Board of Health calling for the plans and specifications of my refrigeration ship that he might advertise for bids in the usual manner," wrote Professor Gamgee.

"This startling announcement, after so much delay and investigation, indicated that the nature and urgency of this matter have been imperfectly appreciated.

"It is probable that the scientific character of my work has not been explained to the Secretary of the Treasury, and that he has not been informed how much depends on the skill and practical knowledge of my own engineers and constructors in carrying this very difficult matter to a successful issue . . ."

Professor Gamgee reminded Dr. Turner that he had from the first told the National Board of Health, "I must in all fairness to myself demand that my system and project shall be regarded as my personal property and therefore not to be submitted or disclosed to rival inventors and contractors."

Secretary Sherman ruled on June 24, 1879: "I am compelled to say the law and the practice in this Department requires that plans and specifications of the proposed ship and machinery be publicly advertised and open to competition by all proper parties."

It already was too late to build the refrigeration ship in time for the yellow fever season of 1879. Indeed, the refrigeration ship idea was sunk, forever.

Neither Professor Gamgee nor Dr. Billings gave up easily on the refrigeration ship. The Professor delivered an appeal for it at the Young Men's Christian Association late that year in New Orleans. His lecture, couched to appeal to local pride, was published in the *Daily Picayune* of December 22, 1879.

He then said that the first person to have suggested "the idea of artificial refrigeration as applied to infected vessels" was Dr. J. C. Faget, of New Orleans, who he described as "this learned, and on many points unrivalled authority on yellow fever."

Dr. Faget was one of a famous family of New Orleans physicians who have made notable contributions to the Public Health Service.

"The method of operating high-pressure gases in my thermoglacial engines will enable us to cool dwellings, country houses and warehouses—indeed a whole city—at very little if any excess of expenditure over that

requisite to warm a Northern city during the winter weather," said Professor Gamgee.

"New Orleans, Vera Cruz, and Calcutta can, and doubtless will, hereafter enjoy whatever climate the will and wants of man demand within the limits of residences, theaters, halls, factories and ships. This is no stretch of possibilities. Skillful and current engineers have hitherto considered such a result unattainable. But we have surmounted difficulties to insure economies which place it in man's power to control the conditions of life in the tropics within enclosed spaces."

The next month, January 1880, revised views of Dr. Billings were included in the first annual report—for 1879—of the National Board of Health. He favored a "disinfecting ship," which should include "not merely apparatus for refrigeration, but also the disinfection by dry heat, by superheated steam, by disinfecting gas or vapors, etc." The report held that the construction should not be on a contract given to the lowest bidder, but that it "should be done at one of the Navy yards under the direction of the Secretary of the Navy."

The silent struggle between Surgeon General John B. Hamilton of the Marine Hospital Service and Dr. John S. Billings, vice-president of the National Board of Health, relentlessly continued.

One method used by Dr. Billings in conducting this feud is shown by a letter marked *Private*, now at the National Library of Medicine, which he wrote to H. C. Meyer on December 22, 1880. A portion of it follows:

"I have just received reliable information that Dr. Hamilton, the chief of the Marine Hospital Division, intends to oppose as far as possible the bill to prevent the adulteration of food and drugs and that he is instructing his subordinates to this effect. He does not wish to have this bill amended but defeated, his motive being hostility to the National Board of Health and to myself. His line of action will be to get the druggists and large drug importers alarmed lest their business may be interfered with, alleging that the clause which imposes on the National Board of Health the duty of fixing the limits of variability will enable that body to injure the drug trade, to override the pharmacopoeia and the Druggists Standards, etc., etc. Dr. Hamilton has an agent in most of the large cities and you know how fearful and sensitive any trade is to proposed legislative interference.

"This information comes to me confidentially and I wish that Dr. Hamilton could be interviewed by someone to whom he would talk freely and who is also friendly with you in order that his plans may be known. His motives are so petty and malicious that if satisfactory and usable evidence of them can be obtained it will use up his influence pretty promptly."

Dr. Hamilton did his talking directly to the members of the House and Senate Committees on Commerce which handled all matters relating to the Marine Hospital Service.



# National Board of Health BULLETIN.

FOR THE WEEK ENDING JUNE 28, 1879.



[Vol. 1.]

WASHINGTON, D. C., JUNE 28, 1879.

[No. 1.]

## ANNOUNCEMENT.

The first number of the "NATIONAL BOARD OF HEALTH BULLETIN," published under act of Congress approved June 2, 1879, is here with presented.

It is proper to state that the greater portion of the mortality statistics, together with the notes from consular reports, were obtained for this number of the BULLETIN from the Surgeon-General of the United States Marine Hospital Service, whose duty it has been under a former act of Congress (April 29, 1878) to obtain and publish the same. The first number of the original "*Bulletin of the Public Health*," issued under the Act referred to, was published by the late Surgeon-General Jno. M. Woodworth, July 13, 1878, and the last number by Surgeon-General John B. Hamilton, (his successor in office,) May 26, 1879.

In order that no lapse should occur in the mortality statistics, tables for each week are presented covering the time between the last number of the "*Bulletin of the Public Health*" issued by the Surgeon-General of the United States Marine Hospital Service and the first number of the "NATIONAL BOARD OF HEALTH BULLETIN."

The BULLETIN will in future be issued weekly, and will be made as complete as possible: and to that end the aid of all State and municipal health officers, sanitarians, and private individuals, at home and abroad, is urgently requested. With this issue of the BULLETIN, the Acts constituting the National Board of Health, and prescribing its duties, together with the rules and regulations prepared by said Board, are published for the information of the public. It is also intended to publish in the BULLETIN, from time to time, such local quarantine and other sanitary rules and regulations as may be adopted by the various State and municipal authorities throughout the United States, and it is hoped that boards of health, quarantine officers, and others, will keep the Board fully advised of all such rules and regulations, and of any changes that may subsequently occur in them.

The Board is especially desirous of obtaining for publication in its BULLETIN notes of the occurrence of epidemics in any part of the United States, and due credit will be given the writer or reporter for such notes, or for information which will lead to their preparation. All communications intended for the BULLETIN should be addressed to The National Board of Health, Washington, D. C.

## CONSTITUTING ACT.

THE NATIONAL BOARD OF HEALTH was organized under the following Act of Congress, approved March 3, 1879, entitled "An Act to prevent the introduction of infectious and contagious diseases into the United States, and to establish a National Board of Health:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there shall be established a National Board of Health to consist of seven members, to be appointed by the Presi-

dent, by and with the advice and consent of the Senate, not more than one of whom shall be appointed from any one State, whose compensation, during the time when actually engaged in the performance of their duties under this act, shall be ten dollars per diem each and reasonable expenses, and of one medical officer of the Army, one medical officer of the Navy, one medical officer of the Marine Hospital Service, and one officer from the Department of Justice, to be detailed by the Secretaries of the several Departments and the Attorney-General, respectively, and the officers so detailed shall receive no compensation. Said Board shall meet in Washington within thirty days after the passage of this act, and in Washington or elsewhere from time to time upon notice from the president of the Board, who is to be chosen by the members thereof, or upon its own adjournments, and shall frame all rules and regulations authorized or required by this act, and shall make or cause to be made such special examinations and investigations in any place or places within the United States, or at foreign ports, as they may deem best, to aid in the execution of this act and the promotion of its objects.

Sec. 2. The duties of the National Board of Health shall be to obtain information upon all matters affecting the public health, to advise the several Departments of the Government, the executives of the several States, and the Commissioners of the District of Columbia, on all questions submitted by them, or whenever in the opinion of the Board such advice may tend to the preservation and improvement of the public health.

Sec. 3. That the Board of Health, with the assistance of the Academy of Science, which is hereby requested and directed to co-operate with them for that purpose, shall report to Congress at its next session a full statement of its transactions, together with a plan for a national public health organization, which plan shall be prepared after consultation with the principal sanitary organizations and the sanitarians of the several States of the United States, special attention being given to the subject of quarantine, both maritime and inland, and especially as to regulations which should be established between State or local systems of quarantine and a national quarantine system.

Sec. 4. The sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated to pay the salaries and expenses of said Board and carry out the purposes of this act.

THE NATIONAL BOARD OF HEALTH, as constituted under this act, is composed of the following members:

PRESTON H. BAILLIÈRE, M. D., U. S. M. H. S., Maryland.  
SAMUEL M. JAMES, M. D., Ac., Louisiana.  
JOHN S. HILLINGS, M. D., U. S. A., District of Columbia.  
HENRY L. BOWDITCH, M. D., Ac., Massachusetts.  
JAMES L. CARRELL, M. D., Ac., Virginia.  
HUNTER A. JOHNSON, M. D., Ac., Illinois.  
ROBERT W. MITCHELL, M. D., Ac., Tennessee.  
SAMUEL F. PHILLIPS, Esq., *Sanitary General*, District of Columbia.  
STEPHEN SMITH, M. D., Ac., New York.  
THOMAS J. TURNER, M. D., U. S. N., District of Columbia.  
TULLIO S. VERDI, M. D., Ac., District of Columbia.

The first meeting of the Board was held on the second day of April, when the following permanent officers were elected:

Dr. JAMES L. CARRELL, *President*; Dr. JOHN S. HILLINGS, *Vice-President*;  
Dr. THOMAS J. TURNER, *Secretary*. The EXECUTIVE COMMITTEE is constituted as follows: Dr. JAMES L. CARRELL, Dr. JOHN S. HILLINGS, Dr. THOMAS J. TURNER, Dr. STEPHEN SMITH, Dr. PRESTON H. BAILLIÈRE, SAMUEL F. PHILLIPS.

Act to prevent the Introduction of Contagious and Infectious Diseases into the United States. Approved June 2, 1879.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That it shall be unlawful for any merchant ship or vessel from any foreign port where any contagious or infectious disease exists, to enter any port of the United States except in accordance with the provisions of this act, and all rules and regulations of State boards of health and all rules and regulations made in pursuance of this act; and any such vessel which shall enter, or attempt to enter, a port of the United States, in violation thereof, shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding one thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. And in all such proceedings the United States district attorney for such district shall appear on behalf of the United

Courtesy National Library of Medicine, PHS

Copy of the first page of Volume 1, Number 1, of the *National Board of Health Bulletin* of June 28, 1879, taken over by Act of Congress, from the Marine Hospital Service.



THE TREASURY DEPARTMENT,  
OFFICE SUPERVISING SURGEON-GENERAL,  
UNITED STATES MARINE-HOSPITAL SERVICE,  
Washington, December 7, 1880.

The "Bulletins of the Public Health," published in accordance with the National Quarantine Act of April 29, 1878, were issued from this office weekly, from July 13, 1878, to May 24, 1879, inclusive, compiled from the reports received during the periods in which the recent epidemics of the plague in Russia and yellow-fever in the United States prevailed, the latter by far the most disastrous epidemic of yellow-fever that has yet visited America. These reports were originally published on separate sheets by the papyrographic process, which was ill adapted for permanent record; and it was impracticable that any considerable number could be furnished to those desiring them. In order, therefore, that there may be on file in each marine hospital the complete series in a permanent form, it has been decided, with the approval of the Secretary of the Treasury, to republish the "Bulletins" in a shape better adapted for preservation.

JOHN B. HAMILTON,  
*Supervising Surgeon-General, M.-H. S.*

## BULLETINS.

### No. 1.

OFFICE SURGEON-GENERAL, U. S. M.-H. S.,  
Washington, July 13, 1878.

The following information is furnished by the Surgeon-General of the Marine-Hospital Service to State and municipal officers of health, &c., in accordance with the requirements of the National Quarantine act:

*Havana, Cuba.*—From 20 to 34 deaths from yellow-fever, and more from small-pox, are now occurring weekly in the city of Havana.

*Cardenas and Sagua la Grande, Cuba.*—Good health in bay and city.

*Matanzas, Cuba.*—The captain and four of the crew of the bark "Marie Donau" were attacked with yellow-fever on the 3d instant, in the harbor of Matanzas. Only one other case of fever has occurred in the shipping of that port. Sporadic cases are reported in the city, but the disease is of a mild character.

*Key West, Fla.*—Two cases of yellow-fever have occurred in the harbor of Key West, one on the Norwegian ship "Marie Frederike," and one on the Spanish bark "Doña Talefora." The city is reported healthy.

Two of the British vessels which recently conveyed native Indian troops to Malta, had cholera on board during the passage from India. On one of the vessels nine cases and four deaths, and on the other two deaths, occurred before the vessel passed the Suez canal. The vessels were allowed to pass the canal without detention, though it is customary to send a vessel, on which a single case of cholera has occurred during the voyage, back to Thor, 120 miles, there to remain two weeks or more in quarantine.

JNO. M. WOODWORTH,  
*Surgeon-General, U. S. M.-H. S.*

Courtesy National Library of Medicine, PHS

Copy of Surgeon General John B. Hamilton's 1880 statement in which he did not acknowledge that the National Board of Health had taken the Marine Hospital Service *Bulletin*, but did republish all the *Bulletins* sent out by his predecessor, Dr. John M. Woodworth.

When Dr. Hamilton made his own first annual report for the fiscal year ending June 30, 1879, he did not even mention the National Board of Health. He merely stated: "Under the provisions of the National Quarantine Act of April 29, 1878, forty-six weekly numbers of the *Bulletin of Public Health* were issued from reports received from local sanitary authorities, customs, revenue Marine consular, and marine hospital officers, and compiled in this office." He did not state why there were but forty-six weekly numbers in the fiscal year 1879 instead of fifty-two. Dr. Billings already was deciding each item that would appear in each issue of the new *National Board of Health Bulletin* which had been taken over from the Marine Hospital Service.

Dr. Hamilton demonstrated in his first annual report his quick mastery of the entire operation of the Marine Hospital Service.

He briefly gave the statistics—20,992 seamen furnished relief that year, a record high; 11,499 cared for in hospitals, the rest outpatients; total receipts, \$361,409.58; total expenditures, \$375,164.01. This meant that Congress, again, would have to make up a deficit.

He laid great stress on the high professionalism of his Service. He stated that two medical examining boards had been convened that year, the first qualifying for appointment three out of eleven candidates; the second qualifying four out of twenty-one.

"The examinations have been growing more rigid each year, as the number of applicants increased," said Dr. Hamilton. "Hygiene and the general principles of hospital construction have been made especially prominent topics. The percentage of rejections has been 78 percent of the whole number examined."

The fact that the National Board of Health conducted no such competitive examinations became one of his chief arguments against it.

Dr. Hamilton reported the setting up of the long-pending Marine Hospital for the Port of New York. Dr. Woodworth had recommended Bedloe's Island for the hospital in his report of 1877. The War Department evacuated that island, the site of Fort Wood, in July 1878, and turned it over to the Secretary of the Treasury for the use of the Marine Hospital Service, subject to the provisions of the act of March 3, 1877 "designating Bedloe's Island as a site for the Colossal Statue of Liberty."

"The island was immediately occupied, supplied with every convenience for the sick, and is in successful operation," reported Dr. Hamilton.

He advocated an expansion policy for the Marine Hospital Service, in sheer defiance of Dr. John S. Billings who had recommended only four marine hospitals, one on each coast.

"The steadily-increasing number of patients treated by this Service shows that the policy of selling or leasing for long terms of years Marine-Hospital buildings during temporary depressions in commerce is a short-sighted one," he said, "and in my opinion it would be advisable to repurchase now, some of the buildings sold shortly after the war.

"Pavilion hospitals of the first class are now needed at Baltimore and New Orleans, and cottage hospitals should be constructed at Cairo, Memphis, Vicksburg, Norfolk, Galveston, Savannah and Pittsburgh."

He obtained much of the expansion that he asked. In August of 1882, Congress accorded him appropriations for purchase of sites and construction of four Marine Hospitals, \$60,000 for one at Cairo, Illinois; and \$100,000 each for hospitals at Cincinnati, Ohio; Baltimore, Maryland; and New Orleans, Louisiana.

Dr. Hamilton included reports on the 1868 quarantine operations of the Marine Hospital Service under his predecessor. One article was by Surgeon Walter Wyman, telling about the St. Louis quarantine caused by yellow fever coming up the Mississippi River from New Orleans. Dr. Wyman would be Dr. Hamilton's successor as Surgeon General.

By all odds the most interesting report on his remarkable domain published by Dr. Hamilton was titled, "Notes from the Cruise of the U.S. Revenue Steamer *Rush* in Alaskan Waters." This cruise of six months started from San Francisco May 8, 1879.

Assistant Surgeon Robert White, the Marine Hospital Service medical officer who made this cruise, filled thirteen printed pages with a detailed description of how the Revenue Cutter Service, now known as the Coast Guard, annually carried into Alaska both medical supplies and physicians for the natives.

Dr. White also made clear that this country was merely continuing a service already established.

"During the Russian occupancy of the country, a hospital of considerable capacity was maintained at Sitka by the Russian Fur Company," he said.

"Physicians were also sent, periodically, to visit the larger trading stations and to furnish such assistance as might be required."

One of the services performed by the Russian physicians was vaccination of the Alaskan natives for smallpox.

"On the Russian garrison being replaced by the United States troops, gratuitous attendance was continued by the American medical officers, and the people are inclined to consider that they have a claim on the United States Government to be furnished with medical attendance and medicine," he said.

Dr. White commented that since the removal of the United States troops from Alaska there had been no resident surgeon at Wrangel or Sitka and that there was a great demand for such services.

Vividly he described the lives of Alaskan Indians, Aleuts, Russians, and Creoles, an admixture of Russians and Aleuts. He told of the great prevalence of syphilis, contracted by Indian women who were annually sold to white men for the summer season of hunting and fishing—and who then passed the disease on to their native husbands and to their children.



He described the skin diseases, the pneumonias, and the massive, population-decimating attacks of measles and of smallpox.

However, he also praised the patient work done by the missionaries for the better health and morality. And he took time to tell of one shining spot in the voyage where good health prevailed.

"At the island of Atchka a single American has charge of a settlement of two hundred and thirty natives," he said. "These people were the most cleanly, healthy and prepossessing seen in the country; their houses, though more subterranean construction than on the other islands, were comparatively clean and free from offensive sights and smells, the earth walls and roof being neatly lined with straw matting of their own manufacture, piles of which also composed their beds. A single case of primary syphilis was found there, and there was little demand for the services of the surgeon of the revenue cutter."

He ascribed the "very prevalent" drunkenness throughout Alaska to the troops which had been stationed there.

"As the importation of liquor in any form into the Territory is prohibited by United States law, the natives resort to extemporaneous distillation for a supply, having learned the process from both the Russians and the American garrisons," he said.

"The liquids thus prepared are known among the Indians as 'hootchenoo' which in their language is equivalent to 'happiness.'"

In a later annual report, Dr. Hamilton commented: "There is great need of systematic medical relief for these helpless people, as the devastations of syphilis and smallpox among them well attest." Before he closed his career as Surgeon General he was strongly urging a small Marine Hospital at Sitka, where relief had been set up for seamen under a contract system.

Alaska was by no means the only Arctic region into which the life-saving Revenue Cutter Service early penetrated with a marine hospital service physician ready to treat all ailments. The cutters also made annual voyages on the Atlantic Ocean side of the continent.

Most famous of them all was the *Bear*, purchased in February 1884, which played a dramatic part in the rescue of the survivors of the Adolphus W. Greely expedition of 1881 to 1884. Greely headed an exploring party of twenty-five men who, in 1882, wrested the "Farthest North" record from the British who had held it for three centuries.

The point at which they established this record was 83 degrees and 24 minutes north latitude, an event later the subject of an enormous oil painting which hung for decades in the House Appropriations Committee room as generations of Congressmen argued over whether or not to pay the painter.

The relief ship which was to have met the Greely party at the end of its long trail, one-eighth of the way around the world north of the 80th parallel, had gone down. The men waited for it in vain. The party was



rescued by the American ships *Bear* and *Thetis* and the British vessel *Alert*, only after all but seven of the men had starved to death. No doubt the medical treatment which started them back to health was given by an officer of the Marine Hospital Service.

"We had provision for six weeks; we lived on them for nine months," General Adolphus W. Greely told the *Associated Press* at age 86. "That is, 7 of the 25 lived. It was share and share alike on Cape Sabine, and the strongest constitution triumphed. There was one exception, a man with both hands and feet frozen off. We gave him double rations. No one objected. He was one of the seven saved, but he died in the hospital shortly after."

For 39 years the *Bear* made annual trips to the Arctic, taking part in every kind of rescue, assistance, investigation and patrol, its crew living by the health rules of the Marine Hospital Service medical officer aboard. He prescribed for the sick on board, and provided first aid to those rescued.

General Greely was interviewed by the *Associated Press* for comment on the difference between Arctic travel in his time, and on that day, November 29, 1929, when the newspapers had announced the flight of Commander Richard E. Byrd across the South Pole, making him the first man in history to fly across both the earth's poles.

"The flight was without mishap, and everything worked well," the announcement said.

In 1932, Richard E. Byrd, then a Rear Admiral, secured the *Bear* for Antarctic trips and had it refitted at the Boston Navy Yard. The *Bear* remained in Navy service until decommissioned in 1944. She was sold to Canada in 1948, and sank off the coast of Nova Scotia in 1963.

Working daily as he did on a health front closely tied in with the commerce of the country, it is small wonder that Dr. Hamilton was grimly determined to preserve a centralized health service in which the orders were given by the Surgeon General of the Marine Hospital Service. He was therefore determined to end all operations of the National Board of Health.



## Chapter 8:

### HAMILTON ENDS BOARD— NATIONAL LABORATORY OF HYGIENE

Surgeon General John B. Hamilton

1879–1891

(Part Two)

Supervising Surgeon-General John B. Hamilton of the Marine Hospital Service, who had managed to get a possible death-sentence written into the \$500,000 appropriation law of the National Board of Health, was equally resourceful in getting that death-sentence put into operation. He made sure that no more Federal money would be granted to the States for control of epidemics. He also created legal devices in the territories and on the high seas, where there were no State Boards of Health, to curb the powers of the National Board of Health.

Yellow fever was the immediate emergency in the summer of 1879 when Dr. John S. Billings of the United States Army, as vice-president and member of the Executive Committee of the National Board of Health, was putting into effect all the quarantine powers which that Board had, by Act of Congress, taken over from the Marine Hospital Service.

Only as tireless a juggler of many balls as Dr. Billings would have attempted the detailed, time-consuming method he had chosen—the cooperation of the National Board of Health with State and local boards of health—to combat yellow fever on an emergency basis.

He wrote long letters to State and local boards of health going into the details of the law which required that they would receive no Federal money until they adopted, as their own, the Rules and Regulations laid down by the National Board of Health.

For an “inland quarantine” as opposed to “maritime quarantine” they would also have to show that one or more other States were endangered by an epidemic. They would have to prove that they were unable to pay the heavy costs involved in preventing it. If there was no board of health, they must organize one. All these points were made over and over again in letters signed, “J. S. Billings, V.P.N.B.H.”

Quite naturally, Dr. Billings turned first to New Orleans, Louisiana, the city where the 1878 yellow fever epidemic started, to give a grant for its control. He initiated a request to the Secretary of the Treasury for a fund to send into Louisiana, at the same time writing Dr. Samuel M. Bemiss, the Board of Health member at that port, that the aid was conditioned on its board adopting the Rules and Regulations recommended by the National Board of Health.



Courtesy National Library of Medicine, PHS

This portrait of Dr. John S. Billings, in academic gown, hangs in the National Library of Medicine. Painted by Cecilia Beaux, it resulted from a \$10,000 gift in 1895 at a testimonial dinner given by 259 physicians of this country and Great Britain. In his long and honored career, Dr. Billings met few reverses. The sharpest were those dealt by Supervising Surgeon General John B. Hamilton of the Marine Hospital Service between 1879 and 1891.



However, that same day, July 10, 1879, a telegram from Dr. Robert W. Mitchell, Memphis, Tennessee, member of the National Board of Health, told of the first case of yellow fever at Memphis.

The National Board of Health immediately sent Dr. W. B. Winn to Memphis to help Dr. Mitchell draw up an inland quarantine plan. A request to authorize Federal aid for Memphis was sent to the Secretary of the Treasury.

Dr. Mitchell was told that, with pay of \$10 a day and expenses, he was to be considered "as on special duty under the Board to cooperate with the health authorities of Memphis and of the States of Tennessee, Mississippi, Arkansas, Illinois, and Kentucky to prevent the spread of yellow fever from Tennessee to those States."

The first Federal grants-in-aid to a State Board of Health thus went to Tennessee to combat yellow fever in the inland town of Memphis, and not to Louisiana for New Orleans, an ocean port.

The final accounting made by Dr. Billings on his personal supervision of Board of Health finances from its organization until it lost its appropriation on June 30, 1882, showed that grants totaling \$36,292.44, highest for any one place, went to the State Board of Health of Tennessee; \$7,026.64 to that of Mississippi; \$6,399.76 to that of Arkansas; and \$1,323.32 to that of Illinois.

Soon after Dr. Mitchell was put on active duty for the Board of Health in Memphis, Dr. Bemiss was given the same status, on \$10 a day and expenses, in New Orleans.

Grants to the State Board of Health of Louisiana totaled \$11,384.68. Of this Board the National Board of Health said in its first annual report: "The State Board of Health of Louisiana is only such in name, as it is really only the board of health of New Orleans, with power for quarantine purposes." This charge has always been denied by Louisianians. The only other grant to a State board of health was \$115 to Texas.

But as the quarantine work went on, grants were also made to local boards of health.

In grants to city boards of health, Mobile, Alabama, received \$2,195.46; Meridian, Mississippi, \$218.30; Charleston, South Carolina, \$7,746.72. Aid to Pensacola, Florida, was given as \$14,338.01; to Pascagoula, Mississippi, as \$3,888.77; to Hancock County, Mississippi, \$614.36; to Harrison County, Mississippi, \$766.90; and to the District of Columbia, \$7,710.00.

This was the tally of the first grants-in-aid of the Federal Government. Not until the Social Security Act was passed in the Franklin D. Roosevelt Administration did such grants again become a major factor in the Federal health system.

Another health idea initiated in this country by Dr. Billings, who had observed it at work in England, was the appointing and paying of com-

petent experts by the National Board of Health to make specific "scientific investigations."

He initiated nineteen of them, which might be regarded as early trailblazers for the gigantic medical research grants system operated today by the National Institutes of Health of the Public Health Service. It has become a billion-dollar-a-year business, operating in universities and research systems throughout this country and abroad.

"Special Scientific Investigations" was an item totaling \$33,823.18 in Dr. Billings' final accounting of the \$556,611.76 spent under his supervision.

Among the nineteen scientific investigations subsidized by the National Board of Health were:

As to the best method of determining the amount and character of the organic matter in the air, by Professor Ira Remson, of the Johns Hopkins University, Baltimore, Maryland.

As to the effects of disinfecting agents upon the causes of the infectious diseases, under the direction of Dr. C. F. Folsom, of Massachusetts, assisted by Dr. H. P. Bowditch, professor of physiology, and Dr. Wood, professor of Chemistry, in Harvard University.

As to the composition and merits of the various patent disinfectants, by Professor C. F. Chandler, of Columbia College, New York.

As to the communicable diseases of animals by Prof. James Law, of Cornell, University, Ithaca, New York. Dr. Verdi, a board member, was also paid for an essay on this subject, which was bitterly criticized by Dr. Hamilton.

As to the best method of determining the amount of organic matter in potable water, and its effects on the health of the person who drinks it, under the direction of Professor J. W. Mallet, of the University of Virginia.

Striking where the iron was hot, the National Board of Health held its second meeting outside of Washington in Nashville, Tennessee, on November 22, 1789. At its close a National Board of Health Committee, with Dr. Billings as chairman, went on into Memphis to conduct the house-to-house sanitary survey for which the Board was paying.

Dr. Billings took with him as expert advisers Dr. C. F. Folsom, secretary of the State Board of Health of Massachusetts, who soon would replace Dr. Bowditch on the National Board; Colonel George S. Waring, Jr., a civil engineer who had invented several devices for use in sewage systems; and Dr. Charles Smart, of the U.S. Army, who was especially detailed to analyze the Memphis water supply. Colonel Waring and Dr. Smart also later became members of the National Board of Health, and, because he considered them both vulnerable to criticism, the special enemies of Dr. John B. Hamilton.

Probably no more complete detail had ever been obtained on any city than Dr. Billings achieved through the house-to-house canvas on the sanitary condition of Memphis. He found its population to be 30,659 of which 16,705 were white in 3,755 families averaging 4.15 persons per family.

"There is practically no sewer system in Memphis," said this report, "the four and a half miles of existing private sewers having only 215 connections in all."

The plan for a sewer system proposed by Colonel Waring was adopted by the legislative council of Tennessee and Colonel Waring was appointed to supervise its installation. Unsanitary houses and shanties in Memphis were condemned and destroyed. Infected clothing and rags were burned. The streets were cleaned and flushed. The spread of contagion was checked. The National Board of Health received great praise from Memphis.

Things were not going so well in New Orleans. The National Board of Health took on the thorny task of setting up a Federal quarantine station there early in 1880. Dr. Billings counted on this move to furnish him a triumph in December, when he would preside over the annual convention of the American Public Health Association in New Orleans.

However, that happened also to be the very year when Dr. Joseph Jones, an ardent advocate of States' rights, was appointed President of the Louisiana State board of health by Governor Louis Alfred Wiltz, who thought the commerce of New Orleans was being ruined by yellow fever scares promoted by the National Board of Health.

Week after week, Dr. Bemiss struggled with the innumerable duties delegated to him by the Executive Committee in Washington, D.C.

Ship's Island, an old quarantine station on the west bank of the Mississippi River about seventy miles below New Orleans, was the site of the National Board of Health operations. It consisted of a 50-bed yellow fever hospital, a 50-bed smallpox hospital, a residence for the medical officer, a small building for the quarantine police, a wharf, and a warehouse.

"These buildings are all in good condition, and probably adequate for their intended purpose," reported Dr. John H. Rauch, of Chicago, sent there by Dr. Billings as an inspector.

A far different picture came from another inspector, Dr. A. H. Bell, only a few weeks later. He described the yellow fever hospital as "now very filthy and rapidly going to wreck."

"Throughout the wards, festoons of old cobwebs filled with broken fragments of wall and dead flies ornament the walls and cover the windows," he wrote. "The doors and windows are sadly out of joint, and the floors are covered with accumulations of filth, and with blood and the sprinklings of carbolic acid.

"In one of the wards where four deaths occurred three weeks before the time of this inspection the mattresses and blankets used by the patients were piled in one corner, evidently without being cleaned, and the windows were closed.

"I elicited the statement from the health officer that removals from the vessels to the hospital were always fatal."

The National Board of Health bought two quarantine ships, the *Day Dream* and *Annie*, and stationed them at Ship Island.



Every item of expense concerned with this quarantine station had to be cleared by Dr. Bemiss through the Executive Committee in Washington, D.C., and approved by the next meeting of the National Board of Health.

As example, the minutes of the May 27, 1880, meeting of the Executive Committee included this entry:

"Ration for Seamen—Ship Island

"The Secretary laid before the committee a communication (2272) from Dr. S. M. Bemiss relative to rations for seamen on the *Day Dream* and *Annie*.

"Ordered:

"That the Secretary be authorized to write Dr. Bemiss and say that he is authorized and directed to fix the scale of rations of the men on the *Day Dream*, *Annie*, and Ship Island; that he be directed to purchase such things as will keep in bulk; and that the Captain of the *Day Dream* be authorized to act as Steward, to receive the supplies distributed and account for them; that Dr. Bemiss be further instructed to either advertise or send circular letters around to a number of prominent dealers in order that there may be fair competition; also that Dr. Bemiss be requested to confer with the local Commissary officers of the Army as to prices, etc."

In June of 1880, the National Board of Health received a sharp letter from Dr. Joseph Jones in regard to the sending of infected ships to Ship Island. Dr. Jones flatly stated that his State Board "cannot delegate its powers" to the National Board of Health. The Executive Board ordered that the President of the National Board of Health "call the attention of Dr. Bemiss to the wording of the national quarantine law." In other words, Dr. Bemiss, on the spot in New Orleans, was to argue the matter out with Dr. Jones.

Apparently, Dr. Jones was placated, at least temporarily, for soon it was ordered "that the President be authorized to sign a requisition for \$5,000 for aid to the Board of Health of Louisiana."

Among the scores of instructions issued to Dr. Bemiss by the Executive Committee was one that he investigate a charge that "Dr. E. Latham has on several occasions been intoxicated and unfit for duty, and if he finds the charges true he is authorized to suspend Dr. Latham immediately."

That summer, the National Board of Health set up a Mississippi River Steamboat Inspection, buying for that purpose an inspection boat and several launches. They were to operate at New Orleans, Vicksburg, Memphis, and Cairo, to aid the state boards of health of Louisiana, Mississippi, Tennessee and Kentucky in keeping out yellow fever and other contagious and infectious diseases.

Dr. Mitchell was put in charge. Dr. Turner, Navy member of the Board, was sent to Pittsburgh to outfit this small fleet and take it down the Ohio River to the Mississippi. He named the Inspection Boat the *H. A. Benner* and the launches *The Sentinel*, *The Picket*, and *The Lookout*.



"I am not ashamed of the boat in any respect, and the launches will stand criterion anywhere," Dr. Turner wrote back to Dr. Billings.

The time came for the fleet to depart. Dr. Turner arrived at the inspection boat early one morning. He sent Dr. Billings this description:

"Holy Biddy—such a scene of confusion. Hams, bedspreads, sheets, beets, coal, camp stools, and to cap the climax, all the old deadbeats and stiffes and bummers who want to go on a trial trip.

"With the leather medal I am likely to wear as a diplomat, I postponed that excursion."

Dr. Turner said he told the captain to "get everything in place, have all bills in my hands by tonight, and then when everything looks favorable, I'll dust out and take the trial trip."

He added that he expected Dr. Stephen Smith that night to make the trip with him. Dr. Smith, organizer of the American Public Health Association, was on another organizing venture. As the Mississippi River fleet got underway, he and other sanitarians were formulating the Sanitary Council of the Mississippi Valley to back it as the American Public Health Association backed the National Board of Health.

Dr. Turner wrote Dr. Billings he had marked off two rooms for the use of Board members, adding, "They need not be ashamed of taking a trip in one of the prettiest crafts that ever sailed the waters of the Big Muddy. The launches are perfect in every respect, and I'll take my share of the pride in the River Inspection Boats."

As the 1880 yellow fever season drew to a close, Dr. Mitchell, still busy with river inspection affairs, failed to see storm clouds gathering in New Orleans. He and Dr. Bemiss had been ordered by the National Board of Health to make a joint report on the status of the disease that year in the Lower Mississippi Valley. This report had been made and jointly signed.

Suddenly, on October 21, Dr. Mitchell, in Memphis, wrote to Dr. Billings, in Washington:

"Was congratulating myself that the fight was over as far as I could see, the battle won. When lo without a note of warning, Bemiss explodes, a clear case of spontaneous combustion."

Dr. Mitchell said that Dr. Bemiss had his sincere sympathy and added: "He has been worried by the pack of curs in N. O. until he don't know which end he is standing on."

The Executive Board in Washington, D.C., spent October 23 on the Bemiss case. Dr. Bemiss, constantly challenged by Dr. Jones, had capitulated. He had given an interview to the *New Orleans Picayune* on October 17 denying the statement made in the report signed by himself and Dr. Mitchell that there were about 100 cases of yellow fever between August 1st and September 10th in Plaquemine Parish. He said he did not notice the word "yellow" in the report.

Moreover, Dr. Bemiss had written to Governor O. M. Roberts of Texas, and had sent a copy of the letter to the Executive Committee.

It stated that Dr. Bemiss thought it would be well for a meeting of Governors to be convened in New Orleans to consider quarantine during the meeting of the American Public Health Association. Dr. Bemiss told the Governor he "would not willingly consent to undertake again the discharge of duties involving the health and lives of thousands of innocent people hampered and obstructed as he had been during the past year."

The Executive Committee ordered that the President, Dr. Cabell, send a sharp reply to Dr. Bemiss.

Dr. Cabell came to the next Executive Committee meeting to announce that Dr. Bemiss sent him a letter resigning from the National Board of Health. Dr. Cabell said that Dr. Bemiss had given him discretion as to when his resignation would be announced, and that he had decided to withhold his announcement until the next meeting of the Board, December 15, 1880. That, of course, would be after the close of the American Public Health Association Meeting in New Orleans, to be held December 7 to 10. The resignation was never announced.

Dr. Joseph Jones, of the Louisiana Board of Health, called "a General Conference of Health Authorities of Southern and Western States during the approaching session of the American Public Health Association." The National Board of Health was invited to send representatives. The Executive Committee arranged to send two observers; and one delegate, instructed not to vote or "do anything which would in any way bind the Board to accept the conclusions of the aforesaid convention." To further oppose Dr. Jones, a simultaneous meeting of the Sanitary Council of the Mississippi Valley was called in New Orleans.

The stage thus was set for a vociferous three-ring controversy over the whole quarantine question when Dr. Billings left for New Orleans. Excited by this prospect, Dr. Turner, left behind in Washington, wrote a letter to Billings in which Dr. Turner went on record as one of the many hero worshippers in the Billings orbit. An excerpt:

"I am spiritually looking in on the Exec. Com. meeting of the A.P.H. Assn. and can only see the benignant putty head of old Jones as you look at him with a sneer . . . I see you glare down on a sea of faces, some solemn and some with a grin expressive of the vacuity behind—I fancy the curtain rising to slow music—and the sound of applause that greets you—Oh! Gladiator—I who sit in the gallery and who look on with some anxiety will watch your sword play in the arena—Let no thumb be turned down."

In his Presidential address to the American Public Health Association, Dr. Billings spoke soothingly.

"Our eighth annual meeting finds us in the Crescent City—the city in whose health problems we have all taken so much interest, the city whose future depends so much upon sanitary science," he said.

"Slowly and steadily there has arisen, and is growing, a belief that much of our sickness and death is preventable; that we ought to

be able to make our cities as healthy as the country, to lengthen the average duration and increase the comfort of human life."

However, he added, it was often hard to make people listen to the warning voice of the sanitarian. Instead, the attitude is: "Hush! wait a little; don't make a fuss; you will injure the reputation of the city; you will drive away commerce."

The next speaker, Governor Wiltz, said he had just one request to make of the delegates—that they "correct some of the very unjust and seriously damaging prejudices continuously entertained against New Orleans, spread throughout the country, and exaggerated beyond all reason and excuse."

New Orleans newspapers recorded that the two side shows called to finish out this fight simply fizzled out in oratory.

At the meeting of the Sanitary Council of the Mississippi Valley, President R. C. Kedzie, of Lansing, Michigan, said: "The sanitary problems which dominate this Valley cannot be settled by reference to the narrow limits of a State. Disease and pestilence know nothing of the arbitrary chalk marks which we call geographic lines. Deaf to all eloquence about States' rights, the only rights they recognize is the right of men to sicken and die, or get well if they can."

On its final day, the convention called by Dr. Jones merely passed a resolution that the execution of quarantine is properly a function of State and local health authorities and should not be interfered with by the General Government.

The delegates also passed a resolution asking that the General Government pay expenses of quarantine administration which extends beyond the boundaries of a single State.

On the last day of the American Public Health Association Convention, Dr. Sternberg, who had added greatly to his reputation as a National Board of Health expert in yellow fever in Havana, Cuba, brought out into the open the sore subject of the 100 cases in Pesquimine Parish, Louisiana.

He moved that the National Board of Health be asked to appoint a competent person, "free from local prejudice due to a previous expression of opinion, to make a thorough investigation."

Dr. Billings put a substitute in the chair and spoke as a delegate. He got laughs by telling two anecdotes to show the futility of trying to prove a case to a closed mind. He said nothing would be gained by further investigation. Dr. Sternberg withdrew his motion.

Dr. Carlos Finlay, Cuban yellow fever specialist, made the first announcement that there had to be an intermediate agent in the spread of yellow fever, at Washington, D.C., on February 18, 1881, at the International Sanitary Conference to which he had been appointed by the Spanish Governor General to represent Cuba and Puerto Rico.

In that speech he said:

"It is my present opinion that three conditions are necessary in order



that the propagation of yellow fever shall take place: (1) The presence of a previous case of yellow fever within certain limits of time counting from the moment we are now considering; (2) The presence of a person apt to contract the disease; (3) The presence of an agent entirely independent for its existence, both of the disease and of the sick man, but which is necessary in order that the disease shall be conveyed from the yellow fever patient to a healthy individual."

His son, Dr. Carlos E. Finlay, said in his biography of his father: "This statement marks a momentous step in medical science. It is the first public utterance of the possibility of a disease's being transmitted from man to man by an intermediate agent."

In August of that same year Dr. Finlay announced to the Academy of Sciences in Havana, Cuba, his conclusion that the *Culex* mosquito, now known as the *Aedes aegypti*, was the transmittor of yellow fever—the first announcement of the transmission of a disease by an insect vector.

Dr. John Shaw Billings had now reached his zenith. In January of 1881 he was invited to give the general address to the International Medical Congress to meet in London, that August, an honor never before accorded an American. The Surgeon General of the Army, Joseph K. Barnes, directed him to inquire into methods of obtaining and compiling vital statistics in England, Belgium, France, Germany, Switzerland, Austria, Holland, and Italy "In order to furnish the National Board of Health with information on that subject." His triumphal tour lasted from June 30 to November 30, 1881. On August 3, he was guest at a dinner honoring His Royal Highness, The Prince of Wales. Three days later he delivered his oft-quoted address, "Our Medical Literature."

While Dr. Billings was winning at New Orleans and later when he was abroad studying statistics, Dr. Hamilton was plotting strategy on the domestic public health scene.

He figured out a device for taking from the National Board of Health, through the Sundry Civil Appropriations Act of 1882, its annual \$100,000 appropriation to prevent the entry and spread of contagious and infectious diseases. He did it by persuading the House of Representatives appropriations committee in charge of that legislation, that the Board of Health disbursed its funds through a patronage system, and that the Treasury itself was equipped to run a better quarantine system at less cost.

Some years later he revealed in testimony before Congress that he actually had taken over quarantine from the National Board of Health before he even got access to the appropriation. This had taken place, he said, in Montana, a territory where there "were no state laws in force to interfere with any such action on the part of the government."

On May 12, 1882, he said, the collector of customs at Fort Benton sent a telegram to the Secretary of the Treasury that the steamer *General Meade* plying the upper Mississippi, had smallpox aboard.

"I took the telegram over to the then secretary of the National Board



of Health, Dr. Turner," said Dr. Hamilton. "I asked him if they could take action.

"'Yes,' he says, 'we will take action, but will have to call a meeting of the Board. Dr. Cabell is in Virginia. Dr. Smith is in New York. We will have to get the executive committee together.'

"I said, 'this won't do: something has got to be done at once.' I then took the dispatch to the Secretary of the Treasury, and after consulting with him, the following dispatch was sent:

"'Collector W. H. Hunt, Benton, Montana. If you can get quarters on shore for small-pox sailors on board steamboats, do so. Municipal authorities must provide for persons not sailors. Vessels liable for expenses of fumigation. Hamilton, Surgeon-General.'

Dr. Hamilton testified that the customs officer had telegraphed there were no sanitary authorities.

"I telegraphed him to organize a committee and recognize them as local sanitary authorities, and let him be the executive officer of that committee, which he did," testified the Surgeon-General.

He described how neatly Treasury services—customs collectors, revenue cutters, and Marine Hospital officers—dovetailed together in quarantine enforcement.

He even told of the device he had invented to side-step States' rights arguments in sea-ports.

"The jurisdiction of the Revenue Cutter Service, so far as the Customs Service is concerned, and the right to search vessels extends for twelve miles from shore," said Dr. Hamilton. "We examined them and sent them to quarantine stations without their coming into the shore at all or being subject to the operation of local law."

On July 1, 1882, Dr. Turner, Secretary of the National Board of Health, sent out this notice to all subscribers to the National Board of Health Bulletin:

"Sir:

Insufficient provision having been made in the Sundry Civil Appropriations Bill for the year ending June 30, 1883, for the proper continuance of the duties of the National Board of Health, you are respectfully notified that the publication of the Bulletin will be at once suspended should the Bill pass as reported to the House."

Immediately Dr. Mitchell and other friends of the Board in the Upper Mississippi Valley started to rally support for it. On July 18, in the midst of this turmoil, Dr. Mitchell wrote Dr. Billings:

"Our friend Bemiss is in great distress again. Letters written him in 1880 by yourself, Dr. Cabell, Turner and myself, were published in the *Picayune* of Thursday last.

"They were stolen from his office but when and by whom he has no idea.

"Turner was *characteristic* and as a matter of course *unfortunate*."

Dr. Bemiss wrote Dr. Billings he had employed a lawyer and a good detective "to work up the theft of the letters from my office."

"I find that J. J. is the first person in this city *known* to have had these letters in his possession," he said.

Dr. Turner contritely wrote Billings: "I know I am an indiscreet and improper person . . . I want to see the letter: If I wrote it, I'll say so. It must be two years old. As to any conspiracy, I'll deny that."

On August 11, 1882, newspapers were carrying these headlines: "National Board of Health Denied the Epidemic Fund"; "National Board of Health Suppressed—Marine Hospital Service to Fight Infectious Disease"; "Sickly Symptoms Attacking the National Board of Health."

All these clippings were preserved by Dr. John S. Billings. The *New York Herald* quoted Dr. Hamilton: "All that the national board of health can do in fighting the fever or smallpox inland is to hire physicians and send them into the infected districts, and there is no known reason why the marine hospital service should not do the same, and as inexpensively." A reporter for the *Baltimore Sun* visited the headquarters of the National Board of Health and stated that Dr. Turner had discharged all the clerical help. "The only representative of that board there now is Dr. Turner," said the *Baltimore Sun*. Dr. Billings resigned and compiled his single-page, 4-year, \$556,611.76 account of expenditures to be filed with his three-volume set of scrapbooks of newspaper clippings on the National Board of Health. The rest of the board fought futilely on.

The new system was explained by Secretary of the Treasury Charles J. Folger in his annual report as follows:

"One hundred thousand dollars were appropriated by Congress at its last session, to be used, in the discretion of the President, for preventing the spread of epidemic diseases. The expenditure was by him committed to this Department because it had ready the services of trained members of the Marine Hospital Service, of the Revenue-Marine Service, and the Customs Service."

Almost immediately, yellow fever broke out in Brownsville, Texas. Dr. Hamilton told in *Appleton's Annual Cyclopedia, 1883*, Boston, how he used this fund to drive the yellow fever out of Texas. Dr. Hamilton tauntingly sent a reprint of this article "with the author's compliments" to Dr. Billings. It is still at the National Library of Medicine.

He described how an epidemic of plague had been controlled in Russia in the spring of 1879 by establishing a general sanitary cordon all around the province of Astrakhan, and keeping it there for more than a month. The plague did not spread outside the originally infected district.

He then described the similar sanitary cordon he had set up in Texas when the Governor of Texas applied to the Secretary of the Treasury for quarantine assistance.

"At my suggestion," Dr. Hamilton recorded, "a cordon was immedi-



Courtesy National Library of Medicine, PHS

As Vice President of the National Board of Health, Dr. Billings was fighting yellow fever in Tennessee and Louisiana when Dr. Hamilton succeeded in getting Congress to cut off the Board's \$100,000 annual appropriation—and also to transfer it to his own Marine Hospital Service. Then Hamilton made a highly successful fight against yellow fever at Brownsville, Texas, by setting up a cordon of quarantine stations on the Mexican Border (marked on the map by flags) where travellers were detained for ten days to make sure they had not caught fever. This map is in the reprint of the article Dr. Hamilton wrote on the subject, tauntingly inscribed to Dr. Billings, still at the National Library of Medicine.

ately established from Corpus Christi, on the Gulf, to Laredo, on the Rio Grande, along the line of the Texas and Mexican Railway.

"No person was allowed to pass this cordon until after ten days' detention at some one of the quarantine stations (represented by flags upon the accompanying map), that length of time being considered necessary to determine whether or not the particular person would be attacked with yellow fever. Baggage was not allowed to cross the line upon any pretext."

An inner cordon later was set up thirty miles from Brownsville, the original having been one hundred and eighty miles distant.



Dr. Hamilton recorded that the disease continued to rage in Mexico, where the epidemic had originated. Between 500 and 600 cases had come to Brownsville from there, causing panic in that town of 5,000 inhabitants. But in Texas, the disease had been "confined to the limited district where it first appeared."

"The Mexicans, seeing the good effects of the sanitary cordon in the United States, followed the example and established quarantine stations in Mexico guarding against the infected towns," Dr. Hamilton said, "and there, too, the quarantine proved successful and arrested the spread of the disease."

The fight between the Marine Hospital Service and the National Board of Health flared again when the Sundry Civil Appropriation Bill, under which Dr. Hamilton had obtained his Texas quarantine dollars in 1882, hit the floor on February 20, 1883. It also carried a one hundred thousand dollar Presidential appropriation for quarantine.

An amendment was offered that "said sum be expended under the supervision of the National Board of Health."

Representative Ezekiel John Ellis, of Louisiana, opposing the amendment, started citing figures to show the extravagances of that Board:

Dr. Verdi, member from the District of Columbia, had been paid \$300 for an essay on cattle diseases, most of it copied from other publications, Representative Ellis said. \$65,000 was paid by the Board for the quarantine station at Ship Island. \$6,000 was paid for an essay on the pollution of soils.

Representative Vannoy Hartzog Manning, of Mississippi, quickly replied that \$35,000 of the \$65,000 spent on Ship Island was for necessary construction. As to Dr. Verdi's essay, Representative Manning explained that the Chairman of the House Committee on Agriculture had written the Surgeon General of the Army "asking whether it would be judicious to charge the National Board of Health with the investigation of cattle diseases." He had received a reply from Dr. Billings, vice president of the Board, that it was in line of duty "as the health of the population depends much upon the character of animal food used." So Dr. Verdi had spent 30 days making the requested investigation and was paid the \$10 a day allowed a Board member while on duty.

Representative John Floyd King, of Louisiana, asked from whom Representative Ellis had got his information on the money spent.

"From the books of the National Board of Health," answered Representative Ellis.

"And he got that statement officially?" queried King.

"They came from a member who took them from the books of the National Board of Health," said Ellis.

"Was he in charge of those books?" persisted King.

"I give them upon the authority of Surgeon-General Hamilton," the badgered Representative Ellis then flatly stated.



Representative Frank Hiscock, of New York, in charge of the sundry appropriations bill, then made a long speech completely in support of Hamilton, and of putting the quarantine fund in the hands of the President of the United States.

Dr. Hamilton got his appropriation. The quarantine powers of the National Board of Health expired that year.

The feud had not ended. Dr. Hamilton would make two more big public fights for the continuance of his service. But he had won the decision. The methods of the almost century-old hospital service, with its day-after-day bedside grappling with all the disease that sails the seas, would continue to guard the public health. The *New York Herald* highlighted the advantage of this service in a single sentence: "It possesses all the vigor of a service which has but one head, and that a good one."

But time would prove that Dr. Billings also had made a gigantic contribution to the Public Health Service, with indeed a claim to be considered as one of its national pioneers along with Dr. Woodworth and Dr. Hamilton. To Dr. Billings it owes the beginnings of its statistical system, the start of Federally-aided medical research, the first venture in giving grants-in-aid to States and localities, and many of the fundamental principles of hospital architecture.

It is even recorded that in 1880 Dr. Billings suggested that statistical data "might be recorded on a single card or slip by punching small holes in it, and that these cards might be assorted and counted by mechanical means according to any selected use of these perforations."

Thus was foreshadowed all the punch cards, and eventually the punch tapes, which shuttle through today's tremendous calculating machines. One of the most intricate of them operates in the National Library of Medicine, the brain-child of Dr. Billings, now a part of the Public Health Service.

The Marine Hospital Fund tax on seamen, which had started under President John Adams, was repealed in the Shipping Act of 1884, which gave various subsidies to the merchant marine. From that time on the United States Government has paid for the medical benefits given to merchant seamen as a subsidy to shipping.

On February 14, 1884, Dr. Hamilton appeared before the House Committee on Public Health to answer charges made there on February 7, by three members of the National Board of Health—Dr. Cabell, president; Colonel Waring, secretary; and Dr. Verdi, member of the Executive Committee. Colonel Waring had given these charges to the Associated Press and they were widely published.

Colonel Waring had stated that Surgeon-General Hamilton of the Marine Hospital Service had been "injudicious, unskillful, and unsuccessful in his quarantine work" and "in his efforts to control public and official opinion, had been guilty of misrepresentation." The other Board members agreed.

In his reply, Dr. Hamilton proved himself to be a master of vituperation and innuendo.

He called the quarantine fleet of the Board, which the Marine Hospital had taken over in July 1883, "Turner's tugs." He said they were decrepit, and that one of them, on wrong advice from Dr. Turner, Navy member of the Board, earlier had gone to the bottom of the Mississippi River.

"I don't say it was dishonest; I don't say it was 'injudicious'; I simply say it was what they termed in Waring's dispatch, 'unsuccessful and unskillful'" testified Dr. Hamilton.

He repeated his old charge against Dr. Verdi: "He was paid \$300 for an essay in 1879. The committee will please observe that three and a half pages out of the total eight and a half were quotations, a quotation from an editorial in the *London Times*, several columns from the Bureau of Statistics. . . . That was probably an 'injudicious' expenditure on the part of the Board."

Dr. Hamilton charged that Colonel Waring was paid \$500 to investigate sewer-traps and flush-tanks at a time when he held five patents on sewer-traps and flush-tanks, listed with dates of issue.

Then came this typical example of Hamilton innuendo:

"I do not say there was anything dishonest in regard to the matter for a board to appoint a man to investigate a subject—to report on the very things of which he was the patentee. I do not presume to say that gentleman, in case he desired to report another man's patent as better than his own, would not do so, but presume that he would do it. I leave it to the committee to judge whether he would or not."

He insinuated that Dr. Cabell, president of the National Board of Health, had tried to pack the House Committee on Public Health, before whom he was speaking, with his friends. This was hotly denied by Dr. Cabell.

He turned on Dr. Charles Smart, asking him whether a letter he had sent out protesting the withdrawal of quarantine money from the Board was official or personal.

"It is personal," replied Major Smart.

Dr. Hamilton then tartly said that Major Smart had rendered himself liable to a \$300 fine for sending it out under a frank.

Dr. Mitchell in Memphis wrote Dr. Billings in Washington, D.C., that "Hamilton out witted the N.B." in his testimony before the House Committee.

Four members of the National Board of Health, Dr. Smart, Dr. Stephen Smith, Colonel Waring, and Mr. Thomas Simmons then filed further charges against Dr. Hamilton which he answered, one by one. In this document, he told how he got the Board figures for Representative Ellis to use on the floor of the House.

"Mr. Ellis asked me to ascertain what sums had been paid for these

alleged 'investigations' or 'essays,'” he said. “I asked Dr. Bailhache to procure it for me from the books of the Board. He did so with the aid of their chief clerk, Mr. Dunwoody.”

At the same time he was fighting this bureaucratic battle, Dr. Hamilton also was increasing services to seamen, fighting down per capita costs, and raising professional standards. He had many minor headaches.

Dr. Hamilton had used Congress and its appropriating power to drive Dr. Billings from the National Board of Health. He now used the AMA to divest Dr. Billings of his apparently-assured position of Secretary General of the oncoming Eighth International Medical Congress to be held in Washington, D.C., September 5 to 10, 1887. Strangely enough, an unexpected death made it possible for Dr. Hamilton himself to become the secretary-general and to go down in medical history as the editor of the five bulky volumes published as its proceedings.

Dr. Billings had been sent by the AMA to the International Medical Congress in Copenhagen in 1884, as secretary-general of a committee to invite that organization to hold its next Congress in Washington, D.C. This committee included: Doctors Austin Flint, Sr., of New York; Chairman I. Minis Hayes, of Philadelphia; L. A. Sayre, of New York; C. Johnson, of Baltimore; George Engleman, of St. Louis; J. M. Brown, of U.S.N.; and John Billings, of U.S.A. To this was added Dr. H. F. Campbell, of New York, AMA president elect, by vote of the Association. Dr. Billings tendered the invitation in Copenhagen, which was accepted.

Back in this country, Dr. Billings enlarged this small committee to a general committee of twenty-five for the purpose of organizing the next international congress. This general committee also had Dr. Austin Flint as president and Dr. Billings as secretary-general. It set up an executive committee to complete the organizing work, which included the president, the secretary-general, and a member from each of the four cities best known as medical centers—Doctors C. S. Busey, of Washington; Christopher Johnson, of Baltimore; I. Minis Hayes, of Philadelphia; and A. Jacobi, of New York.

The executive committee busily concluded the plans for the conference, including the choice of the chief participants, and published them, in this country and abroad.

However, the AMA was at the same time changing its rules as to who could come as delegates to its own conventions. It became evident that the medical societies of Western, Mid-Western and Southern States were jealous of the power of the doctors in the Eastern cities. None of the State medical societies were represented in the international congress as it was being planned.

An editorial in the AMA Journal of February 7, 1885, decreed with regard to the next AMA convention, to be held in New Orleans in May of 1885, as follows:



“The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by representation in their respective State Societies, and from the Medical Department of the Army and Navy and the Marine Hospital Service of the United States.”

The inclusion of the Marine Hospital Service in this list was highly significant. Dr. Billings had included only the Army and the Navy in his list of organizers. As Surgeon-General, Dr. Hamilton was determined to be left out no longer. He was a graduate of Rush Medical College in Chicago, Illinois. He had formed an offensive-defensive alliance with that venerable member of the Rush college faculty, Dr. Nathan S. Davis, nationally-known as “The Father of the American Medical Association” and at that time the editor of the *Journal of the American Medical Association*.

At the next meeting of the AMA held in Tulane Hall, New Orleans, Dr. Billings rose to report two personal triumphs:

The complete success of the effort to obtain an appropriation for a fire-proof building for the Army Medical Museum and Library.

The acceptance in Copenhagen of the invitation extended by the AMA to hold the next international medical congress in Washington, D.C.



Courtesy National Library of Medicine, PHS

Announcement that he had obtained from Congress the appropriation to build the Army Medical Museum and Library pictured above did not save for Dr. John S. Billings his position as Secretary General of the International Medical Congress of 1887 in Washington, D.C. Instead he had to hand over this position, created by the American Medical Association, to Supervising Surgeon General John B. Hamilton of the Marine Hospital Service.



At this point, Dr. Billings presented to the delegates the printed plan for the organization of the Washington meeting which, he said, had been "extensively circulated abroad, being sent to the leading medical journals in every civilized country."

Well-organized in advance of his appearance, the enemies of Dr. Billings rose up against him. Protests were made that the committee sent to Copenhagen had exceeded its power by coming home and organizing the international congress itself in such a way as to perpetuate its own powers and make high places for its personal friends. It was voted:

"That the committee approved by this Association to arrange for the meeting of the International Medical Congress in America in 1887 be enlarged by the addition of thirty-eight members, one from each state and territory, the army, navy, and marine hospital service, to be appointed by the chairman at this meeting, and that the committee thus enlarged shall proceed at once to review, alter, and amend the motions of the present committee as it may deem best."

This action took from Dr. Billings his familiar role of organizer, and reduced his "General Committee" to the original seven which had become eight with the addition of the president-elect of the AMA. The record of the next day brought the chief behind-the-scenes worker out into the open. It read:

"By request of Dr. J. B. Hamilton, U.S. Marine Hospital Service, the Additional Committee On International Medical Congress was read."

For months, the medical profession was wracked with one of its greatest controversies. In almost every edition, the editor of the AMA Medical Journal lashed back at attacks made in behalf of Billings by the medical journals of the Eastern cities. Leading Eastern physicians refused to take any part in the International Congress and said it should not be held in America. The most bitter attacks against the change in the procedure for the Congress were made by I. Minis Hayes, of Philadelphia, editor of the *Medical News*, who, with Billings, had been one of the "original seven."

Replying to one of Dr. Hayes' attacks, a physician who called himself "Medicus" commented in the AMA Journal that Dr. Billings had in Copenhagen "pledged himself to do a variety of things without reservation (expressed at least) as to the contingency of his not being allowed to have everything his own way."

Slowly things started to smooth out. Dr. Austin Flint accepted the appointment as president of the preliminary organization of the Congress which was made September 24, 1885. Dr. Billings and five others among the principal objectors were invited to become members of the Executive Committee. They refused, but no longer could say they had been excluded.

Dr. Flint, who was to have been the preliminary president, died in March of 1886. At a meeting of the Executive Committee held in St. Louis on May 3, just prior to the thirty-seventh annual meeting of the AMA, Dr. N. S. Davis was elected to take his place as president and Dr. J. B.

Hamilton was elected secretary-general of the preliminary organization. This, of course, became the permanent organization just as it would have if Dr. Billings had continued at the helm.

President Grover Cleveland opened the International Medical Congress when it was held in Washington, September 5 to 10, 1887. On its fourth day, September 8, General William Tecumseh Sherman, with whom Dr. Woodworth had marched to the sea, sat on the platform. Dr. Hamilton must have considered his revenge complete. He and his Marine Hospital Service were sailing high. Dr. Billings and the other "sanitarians" whom he blamed for the death of Dr. Woodworth, his predecessor as Surgeon-General of the Marine Hospital Service, were in eclipse. Dr. Hamilton would appear to have achieved a position beyond attack.

Yet early in 1888, the Committee on Commerce favorably reported a bill to set up a Bureau of Health in the Interior Department which would have taken from the Marine Hospital Service all its public health functions but quarantine. It was lobbied by friends of the now defunct National Board of Health.

After the Committee had voted favorably on this bill, Dr. Hamilton appeared at his own request on February 24, 1888, to oppose it. He testified that the Marine Hospital Service already was doing all that the proposed Bureau of Health would be authorized to do.

And he played his trump card, which probably saved his Service, after Dr. Billings had testified in behalf of the proposed Bureau, making the request, which was granted, that his testimony not be published.

The Hamilton trump card was that he himself had started the medical research which the new bill being advocated by Dr. Billings was demanding.

"Relative to what Dr. Billings says about cholera germs," testified Dr. Hamilton, "I desire to invite the attention of the Committee to the *Weekly Abstract* published a few weeks ago, in which the diagnosis of cholera was made of the cases that occurred in New York, by an officer of my service by the name of Kinyoun, who has spent nearly five years in the study of bacteriology. We have spent several hundred dollars in forming a laboratory in New York, and the diagnosis was made by Drs. Armstrong and Kinyoun, with Dr. Biggs at the Carnegie Laboratory. Full accounts were published in the medical journals."

That was the first time a Committee of Congress had heard of the National Laboratory of Hygiene, headed by Dr. Joseph James Kinyoun, which would eventually become the National Institutes of Health, the great research arm of the Public Health Service. The old building where it started on Staten Island still stands, but nobody now points to the exact spot where the Laboratory was. It is now presumed that it was in an attic, which went when stories were added.

A member of the Committee pointed out that the advocates of the bill for a Bureau of Health in the Interior Department wanted "continuous scientific investigations."



Courtesy National Library of Medicine, PHS

Dr. Joseph Kinyoun, creator and first Director of the Hygienic Laboratory, was suddenly lifted from obscurity by Dr. John B. Hamilton in order to win his last battle in Congress with Dr. John S. Billings. Dr. Billings was urging a Bureau of Health in the Interior Department for "continuous scientific investigation." Dr. Hamilton testified he already had such research in the laboratory set up by Dr. Kinyoun at the Marine Hospital in Stapleton, Staten Island, New York.

"Have you investigators?" he asked.

"Certainly, Dr. Guiteras and Dr. Kinyoun," answered Dr. Hamilton. "Dr. Guiteras was at one time employed by the National Board of Health to go to Havana, and Dr. Kinyoun is working at it every day. I have fitted up a laboratory in New York, but have not blazoned it out to the world; but it has been reported in the *Weekly Abstract*."

Dr. Hamilton then testified that he also was using for yellow fever investigations Dr. Sternberg, who too had been on the National Board of Health study in Havana.





Courtesy Public Health Service

The Marine Hospital at Stapleton, Staten Island, where the Hygienic Laboratory started in August 1887. Presumably it was in an attic which has since become a full story of the old part of the hospital.

This revelation brought testimony from Dr. Sternberg: "The order being signed by the President of the United States, and I being an Army officer, I had no protest to make nor any say in regard to it. I had to go under the instructions, and I have done so."

"And it has been well done," testified Dr. Hamilton.

In his annual report for 1888, made on October 27 that year, Dr. Hamilton made a more formal report of the beginning of the Laboratory of Hygiene. It read:

"In August, 1887, a bacteriological laboratory was established in the port of New York. It is situated at present in one of the rooms of the main hospital building, which had formerly done service as a museum for the 'Seamen's Fund and Retreat Hospital.'

"The different apparatus supplied was modelled after those used in the laboratory of Dr. Koch, of the Imperial German health board, and is supplied with Zeiss's latest improved microscope objectives and microphotographic apparatus.

"Different animals are kept on hand for experimental purposes. Additions have been made from time to time, until a very complete plant of apparatus exists for analyses and bacteriological investigations.

"In October, 1887, experimental studies were made from cases of Asiatic cholera occurring among the emigrant passengers on the steamship *Alesia*, followed later by the examination and diagnosis



made upon cases occurring on the steamship *Brittana*, demonstrating the existence of Asiatic cholera, which was subsequently confirmed by other investigators . . .”

After describing other experiments of the laboratory, stressing those on yellow fever, Dr. Hamilton said: “It is earnestly recommended that the laboratory be transferred to the national capital, where a proper building could be had for the complete equipment, and be placed under the supervision and control of the Department, where it can give the greatest range of usefulness to the Service and as well to the general public.”

Dr. Walter Wyman was the surgeon in charge of the Marine Hospital at the Port of New York on Staten Island when the Laboratory of Hygiene was started. He had taken leave from his Cincinnati, Ohio, post to study in Europe in 1885, and was assigned to New York on his return. He knew the work of Koch and gave the laboratory his complete backing. The fact that the laboratory in his hospital proved the presence of cholera in New York made him the logical surgeon to be elevated to the national quarantine post in Washington. Dr. Hamilton praised him to the Congressional committees in charge of health matters and included his articles in annual reports. In other words, he was on his way to becoming the next Surgeon-General.

As the decade drew to a close, Dr. Hamilton made public his desire to have the name of the Marine Hospital Service changed to indicate its public health province. He led off his 1889 report with a sub-title, *The Public Health*. He quoted the venerable Dr. Davis, of Chicago, as having said at the last AMA convention that the Service “has now become a health department in all but name.” And he inserted a section of an address made to the AMA by Dr. J. Berrien Lindsley, which described the medical research, health reporting, and quarantine work being done by the Marine Hospital Service and said: “Thus it would seem that the United States Marine-Hospital Service has altogether outgrown its name. It should be styled the United States Public Health Service, while retaining essentially its present organization.”

But Congress, sometimes a slow mover, did not respond with a name-change.

That year, Dr. Hamilton was detailed as a delegate to the Tenth International Medical Congress in Berlin, Germany, and was delegated by the Federal Government to inspect, on his trip to Europe, all the major European hospitals and quarantine installations. These places were described in detail in his 1890 report, which turned out to be his last.

On June 1, 1891, Dr. Hamilton's career as Surgeon-General came to an abrupt close for personal reasons. At his own request, he was appointed by President Benjamin Harrison a surgeon in the Marine Hospital Service after resigning as Surgeon-General. Dr. Hamilton moved back to Chicago, where he rounded out a full life as a Surgeon of the Marine Hospital; professor of surgery at his alma mater, Rush College; and editor of the

*Journal of the American Medical Association.* When the Service tried to transfer him to San Francisco, Dr. Hamilton resigned, and took on the superintendency of the Insane Asylum at Elgin, Ill., in addition to his AMA and teaching duties. There he died of a perforated intestine, despite an operation by the famous Dr. Nicholas Senn, on December 24, 1898.

By relinquishing the Surgeon-Generalcy on June 1, 1891, Dr. Hamilton cleared his official desk in Washington just ten days before the National Laboratory of Hygiene moved from Staten Island, New York, into the Butler Building, just across the street from the Capitol of the United States. Surgeon Walter Wyman became Surgeon-General, and moved the entire Bureau to this building.



Courtesy National Library of Medicine, PHS

The Butler Building, just across the street from the United States Capitol on the House of Representatives side, into which Surgeon General Wyman immediately moved the Service including the Hygienic Laboratory under Dr. Joseph J. Kinyoun. This building had been used as a temporary White House by President Chester A. Arthur while the Executive Mansion was repaired and refurnished.

## Chapter 9:

### IMMIGRATION INSPECTION LEADS TO REAL QUARANTINE

Surgeon General Walter Wyman

1891-1911

(Part One)

Walter Wyman, who suddenly became Surgeon General on June 1, 1891, was a bachelor and so remained during his twenty years at that post. His work was his life, which he dominated to the last detail.

He had recently given proof to the Marine Hospital Service of his ability so to operate. In the 1890 annual report, Surgeon General John B. Hamilton had published, in tiny type, the seventeen pages of rules which Surgeon Walter Wyman had worked out in his three and a half years as head of the Marine Hospital at Stapleton, Staten Island, New York. These rules were specific indeed for the medical officer in command, the officers, the stewards, the interns, the day nurses, the night nurses, and the attendants. They told what to do on the reception of patients, fire, uniforms, formal salute, and weekly muster.

As Wyman campaigned for public health causes, he produced the most massive annual reports ever put out by a Surgeon General. The 1896 report totalled 1,079 pages. When an epidemic struck, he sent out telegrams by the dozens, to Service officers, governors, boards of health, ship owners, each demanding action and reply. Until he obtained a law for the National gathering of vital statistics, he annually gathered them through 3,700 circular letters to health officers of all cities having more than one thousand inhabitants.

All who still remember Wyman are agreed that he was meticulous and a martinet. He drew up a typewritten procedure manual telling how to handle Marine Hospital Service correspondence, accounts, publications and other administrative operations. He required that the envelopes containing all the letters he signed should be scrutinized by him after they were sealed so he could be sure that the address was correct. He decided to the last detail the uniforms to be worn by Service officers on hospital duty, at quarantine stations, and on ceremonial occasions. Like a military general, he constantly commanded the medical officers under him to go from place to place. Most of them accumulated long lists of posts of duty within a few years.

Dr. Wyman had made his way up in the career service after a modest start in the Midwest in much the same way as had Dr. Hamilton. Born in St. Louis, Missouri, he was schooled there, graduating from the City Uni-



Courtesy National Library of Medicine, PHS

Surgeon General Walter Wyman, the bachelor who took command of the Service June 1, 1891, and remained in that post until he died on November 21, 1911. He is dressed to the last detail as described for the Surgeon General in the 1893 pamphlet titled: *Regulations Regarding the Uniforms of Officers and Employees of the United States Marine Hospital Service, Treasury Department.*

versity in 1866. He then went East to Amherst College, receiving his A.B. degree in 1870. Three years later, he received his M.D. degree from St. Louis Medical College.



He entered the U.S. Marine Hospital Service in St. Louis by competitive examination in 1876. From there he was transferred to Cincinnati, Ohio, where the Service ran an outpatient department for merchant seamen and operated under contract one ward of a hospital then belonging to an order of Catholic nuns. The Marine Hospital Service had built this hospital, but had sold it during the Civil War.

One spring night in 1881, while in charge of the merchant marine ward of the Catholic hospital, Dr. Wyman admitted an insane roustabout who had been rescued from the Ohio River. This man was so violent and made so much noise that Dr. Wyman obtained a telegraphic order for his immediate removal to St. Elizabeths Hospital, the Government Hospital for the Insane at Washington, D.C. Dr. Wyman travelled with him on the floor of a boxcar.

"For several reasons, among others a desire to visit headquarters, I determined to take him myself. After delivery of the patient at the Government Asylum, I reported to the Surgeon General at his office," narrated Dr. Wyman in his book, *A Cruise on the United States Practice Ship S. P. Chase*.

He said that on this visit Surgeon General Hamilton chanced to remark that he did not know whom to send on the annual cruise of the *Chase*, training vessel of the Revenue Cutter Service (now the U.S. Coast Guard). Dr. Wyman's reply to Dr. Hamilton was, "Send me." Dr. Hamilton did.

This voyage not only gave Dr. Wyman a cruise from June 12 to August 26, 1881, on an old fashioned sailing vessel with visits in Coruna, Spain, and Fayal, in the Azores, but also started him on his way to the Surgeon Generalcy. More and more Dr. Hamilton advanced Dr. Wyman, and ten years later, when he made his sudden decision to depart from Washington, D.C., he chose Dr. Wyman as his successor.

That Dr. Hamilton was thus able to pass his mantle on to the person of his choice demonstrated his high professional standing with his two superiors, the Secretary of the Treasury, Charles Foster, and President Benjamin Harrison. Medical officers of the Public Health Service now long retired say that Dr. Hamilton secured an understanding with Dr. Wyman that he would return from Chicago after a year and take back the Surgeon Generalcy. But at year's end Dr. Hamilton was informed upon mentioning the understanding to Dr. Wyman, that he, Dr. Wyman, liked the job, and would keep it.

Doctors Hamilton and Wyman announced the change of command in circular letters dated June 1, 1891, to the medical officers and acting assistant surgeons. The Hamilton letter opened with: "I this day relinquish the supervision of the Marine Hospital Service which I have exercised since April 3, 1879." He then thanked the medical officers for their cooperation. The letter of Walter Wyman, signed as Supervising Surgeon General, read: "By virtue of promotion by the President, I have this day

assumed supervision of the service and its administration under the direction of the Secretary of the Treasury, in conformity with the laws and regulations.”

Change was in the air as Surgeon General Wyman took office. The Marine Hospital Service was moving its headquarters from F Street to the four-story, with tower, Butler Mansion half-way up Capitol Hill and just across the street to the south from the Capitol grounds. It was a politically strategic spot. That was why General Benjamin Franklin Butler, a member of Congress, who had served as a Union officer during the Civil War, built his home there. From it he made forays into both political parties. It was used as a temporary White House in the Chester A. Arthur administration.

The bacteriological laboratory headed by Dr. Joseph J. Kinyoun was being moved from the Marine Hospital at Staten Island, New York into its fourth floor. When Dr. Wyman had been head of that hospital, he had installed Kinyoun and his laboratory there.

On Capitol Hill Dr. Kinyoun quickly made Congress and the public aware of what he had learned in six months at the two most famous medical laboratories in Europe, that of Dr. Robert Koch, pioneer in bacteriology, in Berlin, Germany; and also the laboratory founded by Louis Pasteur, pioneer chemist and bacteriologist, in Paris, France, which had come under the direction of his successor Dr. Elie Metchnikoff.

In Berlin, Dr. Kinyoun had concentrated on the use of tuberculin in the treatment of tuberculosis under the personal supervision of Dr. Koch. Koch, who had discovered the tubercle bacillus in 1881, had just developed from the culture of that bacillus the preparation which became known



Courtesy National Library of Medicine, PHS

To this impressive Chicago Marine Hospital Dr. John B. Hamilton sent himself as Director when he suddenly resigned as Supervising Surgeon General on June 1, 1891, choosing Dr. Walter Wyman to take his place as Surgeon General.

as tuberculin. He had let it be known that he had a new remedy, but was still keeping its nature, and the process of manufacturing it, a secret.

"Berlin had suddenly become the Mecca for physicians and tuberculosis patients on account of Professor Koch's new discovery," said Dr. Kinyoun in the 1891 report of the Marine Hospital Service. "Tubercular patients were everywhere, and, generally speaking, in the last stage of the disease . . ."

At the Pasteur Institute in Paris, Dr. Kinyoun had studied the methods being used in preventing rabies.

"Fully 100 people can receive the injections within forty minutes," he reported in 1891. "They not only require that a veterinarian's certificate be furnished with every case possible, but demand a portion of the brain or spinal cord of the animal which has bitten the person . . ."

Dr. Kinyoun said that the Pasteur Institute was as well-developed in all other laboratory processes as in rabies, and had recently "been copied in toto" by the Institute for Preventive Medicine in London. This was the Lister Institute, started in 1891, but not completed and opened until 1897.

Dr. Kinyoun concluded his 1891 report by commenting that the Hygienic Laboratory on Capitol Hill "now has the room and equipment requisite for proper work and available for general bacteriological investigations."

"It is hoped that appropriations commensurate with its importance will be forthcoming for its future enlargement," he added. "The subjects of hygiene and demography have not as yet received the proper amount of attention from our legislative bodies. This laboratory, situated and equipped as it is, should form the nucleus of one national in its character, and developed on the same line as those established in Germany, France, and England."

Through this article by Kinyoun, the new Surgeon General served notice he would wage an unremitting campaign for a medical laboratory under his supervision which would rank with any in Europe. Coupled with this drive was another major objective of Surgeon General Wyman—the establishment of a Federal Government quarantine service which would have unquestioned control over State and local quarantine services.

Surgeon General Wyman combined these two major objectives when the Federal Government turned over Dry Tortugas Island, off Key West, Florida, to the Marine Hospital Service for a quarantine station. Dry Tortugas was forever linked in the public mind with the story of Dr. Samuel A. Mudd, the Southern sympathiser who set the broken leg of John Wilkes Booth after he shot President Abraham Lincoln. On June 29, 1865, "for abetting Booth's escape" Dr. Mudd was sentenced for life to Fort Jefferson on Garden Key, Dry Tortugas, an abandoned fort used as a prison. Two others suspected of being Booth conspirators, Samuel Arnold





Courtesy National Park Service, Department of the Interior

Fort Jefferson, Dry Tortugas, where Surgeon General Wyman personally set up a Quarantine Station. There all ships coming in from Cuba were inspected before going on to Atlantic Seaboard and Gulf ports. It is now operated as a national park by the Department of the Interior.



Courtesy National Park Service, Department of the Interior

Long-deserted and in ruins, Fort Jefferson continues to draw visitors as the place where Dr. Samuel A. Mudd was imprisoned for giving medical treatment to John Wilkes Booth after he shot and killed President Abraham Lincoln.



and Michael O'Laughlin, also were sentenced there for life. On September 23, 1867, O'Laughlin died of yellow fever, a fact which helped to identify the island with that disease. Dr. Mudd and Samuel Arnold were pardoned by President Andrew Johnson on March 21, 1869, after almost four years of imprisonment on the island.

Surgeon Wyman headed the Quarantine Division of the Marine Hospital Service when its Dry Tortugas station was started in 1890. He personally supervised the conversion which combined creating a wharf on the water's edge for boarding ships, and setting up quarters for the medical officers and a medical research laboratory in the old officers' quarters of Fort Jefferson. In an isolated section of the second floor of the officers' quarters a three-room laboratory was created "for the special investigation of the cause of yellow fever, an investigation which can best be carried on in the yellow fever zone."

All ships coming from Cuba passed this station, and were given quarantine inspection there, before going on to Atlantic seaboard and Gulf ports. The laboratory started its experiments, on specimens sent from Havana, Cuba, in time for Surgeon H. D. Geddings, in charge, to register complaints in the first annual report of Surgeon General Wyman. Dr. Geddings said it was impossible during the greater part of the year to do any work there with nutrient gelatin as a culture medium on account of the high temperature; and that cultivation of organisms in agar-agar instead had been slow and unsatisfactory.

In that same annual report, Surgeon General Wyman noted that Assistant Surgeon John F. Groenvelt "contracted yellow fever in the performance of his duty at the United States quarantine station on Chandeleur Island in the Gulf of Mexico and died June 29, 1891."

Chandeleur Island was the Federally-owned disinfection station near New Orleans, Louisiana. It succeeded Ship Island as the place where ships coming into New Orleans were thoroughly cleansed after being hastily sent on their way by the local officials. When the hospital ward at Chandeleur Island was swept out to sea by a hurricane in October 1893, Ship Island again became the Federal quarantine point.

In the two years that Chandeleur Island was a quarantine station, Dr. Henry Rose Carter, who became the outstanding authority of the Public Health Service on yellow fever, conducted there a part of his careful, long-continued studies of that disease.

Assigned to Dry Tortugas in 1894, Dr. Carter wrote a long report on its advantages.

"Its isolation is perfect. It is a very healthful place, free from malaria, and the anchorage free from mosquitoes, etc." he said.

He pointed out that every vessel entering through the Florida straits from the West Indies or coming up from Brazil passed it, and added, "For the Gulf, Havana is the port principally to be feared; probably as much as all the other yellow fever ports together, and the place is only eight or

ten hours by steamer and eighteen or twenty-four hours by sailing vessel from Havana (and the wind is always fair) and on the route of every vessel entering the Gulf."

Federal quarantine stations were expanding because a new immigration law had been passed on March 13, 1891, which made mandatory the health inspection of immigrants and stipulated that the surgeons of the Marine Hospital Service should do it. This immigration inspection was important as most epidemic diseases crossed the ocean with steerage passengers.

The immigration law stipulated the exclusion of "all idiots, insane persons, paupers or persons likely to become public charges, persons suffering from a loathsome or dangerous contagious disease" and criminals. The Marine Hospital Service surgeons had to pick from the approaching lines of immigrants all with the diseases and the disabilities important enough to bar aliens from becoming citizens. On these their decisions were final. They left for consideration of immigration officials those with lesser disabilities which might make them become public charges. The immigration officials had to find the felons. Legal appeals were possible. Boards of medical officers could be convened for reconsideration of disputed cases.

During the first year of medical inspection of immigrants Surgeon General Wyman specially detailed surgeons as inspectors at four ports—Baltimore, Boston, New York, and Philadelphia. He instructed the medical officers at all other ports to accept inspection duty as the ships came in. He extended medical inspection service as ways opened.

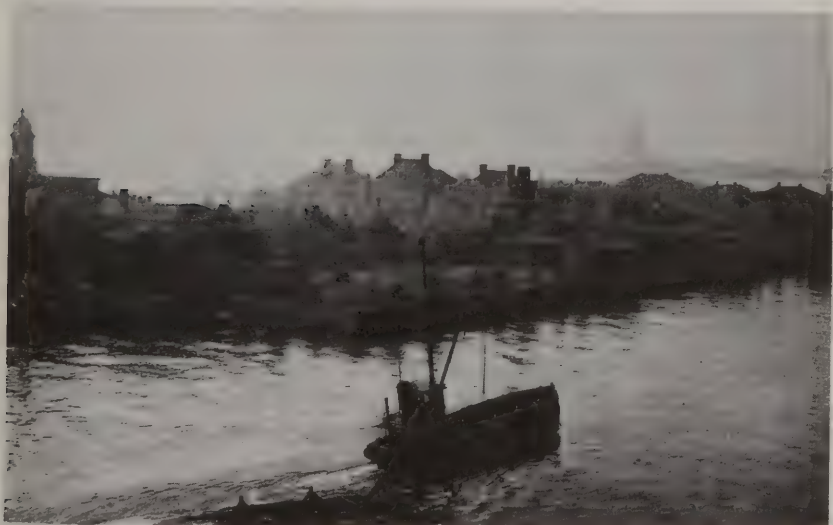
New York was the most important immigration port. Inspection there started in "Castle Garden," a building on the Battery which later became the Aquarium. It was too small, and in 1892, Ellis Island, which had been owned by the Government since 1808, the site of an ancient arsenal, was turned over to the Immigration Service. It was really three small islands totalling twenty-seven acres in Upper New York Bay—one island being used for an administration building, one island for a very large general hospital, and one island for a small hospital for communicable diseases. Later, an annex for mental patients was built to the general hospital.

Ellis Island was the quintessence of the American Melting Pot. There, day after day, the many nationalities with their diversified diseases, met. It was the place where the seasoned specialists of the Marine Hospital Service displayed their skills. There they taught the young doctors who had just passed their entrance examinations how to separate on sight the victims of leprosy; of favus, or ringworm of the scalp; and trachoma, a dangerous eye disease. They also taught them to detect the fearful epidemics of the past—smallpox, plague, typhus, cholera, and yellow fever. It would remain a training ground for the service until it was closed in 1954. Ellis Island has now become a National park.



Courtesy National Park Service, Department of the Interior

An immigration law of March 13, 1891, made it mandatory that all immigrants coming into the United States be given a health inspection by Surgeons of the Marine Hospital Service. Ellis Island, New York Harbor, above, was the largest inspection center, and there young medical officers received their most intensive training in detection of disease.



Courtesy National Park Service, Department of the Interior

Another view of Ellis Island, showing the Statue of Liberty dimly in the distance. It is now a National Park which, when development is completed, will remind the public of the many health lessons as immigrants thronged through the buildings.



Surgeon General Wyman's first chance to dramatize the full meaning of National quarantine as a protection to this country came with the cholera epidemic of 1892 in Asia and Europe. Persia reported 80,000 deaths in comparison with but a total of 15,000 for the two epidemics of 1890 and 1891. The Asiatic cholera spread into Europe with 300,000 deaths estimated in Russia; 3,184 deaths in France; and 8,575 deaths in Germany.

"Long before the press gave evidence of alarm over the cholera situation, it was evident to thoughtful sanitarians that the fearful outbreak in Paris and eastern Russia must soon imperil the United States," said Surgeon General Wyman.

Late in August of 1892, cholera began to show up among immigrants in the steerage vessels arriving in New York Bay. One death occurred there in August. Surgeon General Wyman at once issued orders barring importation of rags, regarded as carriers of cholera, from European ports. The rags were used in this country in the manufacture of paper. Dr. Wyman also ordered the disinfection of the baggage of all immigrants bound for the United States at Asiatic and European points of departure.

The people of the country began to see the possibility that cases of cholera could be entering this country with every boatload of immigrants, then arriving at a total of more than half a million persons a year.

"A popular demand arose that the President of the United States should, by proclamation, suspend immigration," reported Surgeon General Wyman, "but there was no law of Congress authorizing specifically such a proclamation. How, then, to stop this immigration without such a proclamation?"

He then related precisely the legal interpretation through which immigration was stopped for more than ten weeks by order of the President.

"In reading over the quarantine laws of the States, which have been collated and published by the State Department, I found that every seaboard State had the right, under its laws, to enforce a quarantine detention of at least twenty days—some states more—but there was no State which could not enforce twenty days," said Dr. Wyman.

"Under the national quarantine act of April 29, 1878, the General Government is authorized to aid State and local boards, and the principle has been announced by the highest legal authority that while, under existing laws, the National Government might not break down the quarantine barriers of a State, its power is unquestionable to add to these barriers when it becomes necessary.

"In other words, as tersely expressed by another, the State has a right to erect a 10-foot fence, but there is no law to forbid the United States from adding 5 feet to it."

Dr. Wyman said he knew that no steamship company could financially afford twenty days in quarantine. So, with the definite purpose of temporarily suspending immigration, a quarantine detention of twenty days was declared by Surgeon General Wyman and approved by Secretary



of the Treasury Charles Foster and President Benjamin Harrison, on all vessels entering all ports of the United States.

This order was published as a circular dated September 1, 1892, and titled: "Quarantine Restriction Upon Immigration to Aid in the Prevention of the Introduction of Cholera Into the United States." It carried the information that it was sent to all "Collectors of Customs, Medical Officers of the Marine-Hospital Service, Foreign Steamship Companies, and State and Local Boards of Health."

Some ships, crammed with immigrants, already were in harbor. Others were on their way when the order was issued. There was also the possibility that the immigrants would land in Canada and Mexico and enter over the international boundaries. Dr. Wyman rallied all his most competent and experienced medical officers to deal with this situation on an emergency basis.

Former Surgeon General John B. Hamilton was called in from the Marine Hospital at Chicago, Illinois, which he headed, to solve the problem of New York Harbor. Dr. Hamilton's 1892 annual report on the Chicago hospital showed the comparatively modest scale on which he now was operating. He had installed at the Chicago hospital that year a horse paddock, an independent fire-fighting system, an isolation ward, a disinfection station, and a microscopic analysis room to test milk and drinking water. He was planning "a suitable cottage for the commanding officer, a new surgical operating room, a chapel, shrubbery and landscape gardening on the grounds, a brick wall on the north and south sides of the reservation, and a new roof on the fuel house."

Zestfully Dr. Hamilton took command of the far greater logistic problem of setting up Camp Low on Sandy Hook, capable of accommodating 1,000 persons held in quarantine. This turned out to be a far-flung city-State-National enterprise.

Mr. Austin Corbin, a private citizen of New York, made possible the speedy construction of the camp. By taking over its building, he made it unnecessary for Dr. Hamilton to wait on the slower process of Government construction. The New York Chamber of Commerce cooperated by setting up a medical advisory committee headed by the seasoned Dr. Stephen Smith, one of the founders of the American Public Health Association, and strengthened by the advice of Dr. George M. Sternberg, Surgeon-General of the U.S. Army, and Professor William H. Welch, of Johns Hopkins University.

The War Department gave permission for the camp to be built on its reservation. The Navy furnished guards and a sea patrol. Dr. Hamilton was given the use of the steamer *Grant* by the U.S. Revenue Cutter Service.

On Friday, September 9, 1892, Dr. Hamilton took the *Grant* into Horseshoe Cove, off Sandy Hook, carrying 150 carpenters furnished under the agreement with Mr. Corbin. He listed what they built as follows: "a large dining hall with a capacity for seating 500 persons; a storeroom for

the dynamos; surgeon commandant's office and quarters for the correspondents."

Obviously, full-scale newspaper coverage was expected.

"Over 400,000 feet of lumber was used in the construction of the buildings and they were completed on Saturday morning, September 17," said Dr. Hamilton. This was an astounding week's work.

At Camp Low, ships bound for New York and their passengers would be held.

Surgeon S.C. Devan was put in charge of the cholera camp at the Delaware Breakwater which also had a capacity of 1,000 persons for the detention of passengers bound for Philadelphia, Pennsylvania.

A complete maritime quarantine of Virginia ports was established at Cape Charles by fitting up for cholera-fighting purposes a group of old ships. The *Jamestown* was capable of holding between 400 and 500 passengers. The *Ewing*, a hospital ship, could accommodate thirty patients and a full complement of medical officers and nurses. The *Charles Foster* was used as a boarding steamer, the *Robert Koch*, for disinfection of vessels.

Forty medical inspectors were employed by the Marine Hospital Service to keep immigrants from crossing the Canadian border between Maine and the Dakotas.

Even the cherished experiments of Dr. Kinyoun in the Hygienic Laboratory on Capitol Hill in Washington, D.C., were set aside as he took over an assignment from the Surgeon General to inspect and disinfect the ships in New York Harbor.

In November 1892, the *New York Sun* commented: "The stopping of immigration for a period of more than ten weeks, under order of the President, is an incident without precedence in our history. It took place at a time when the volume of immigration was extraordinarily large. It is very certain that but for the restrictions imposed by the President's order, fully 700,000 foreigners would have been added to our population within the current year."

On December 5, 1892, Secretary of the Treasury Charles Foster told Congress:

"State laws cannot properly control or direct the management of a great quarantine where other States are interested. The quarantines of our seaboard are of equal interest to all our population. The whole country should have a voice in their ownership and management, and this can only be accomplished by such legislative action as will forbid the collection of quarantine fees by State or municipal authority, and which will direct the assumption of all quarantine duties by the United States.

"This duty rests under the same authority as that under which laws relating to immigration are framed and executed. Every serious epidemic that this country has ever known has been traced to the

immigrant and it must be apparent that the same authority that controls immigration should control quarantine."

The whole country was now convinced of the need for a National quarantine law. There were even rumors that the World's Columbian Exposition could not open in May 1893 because of the threat of cholera. Congress at last passed a new National quarantine act, signed by President Benjamin Harrison on February 15, 1893, during the last month that he was in office.

This act provided that no ship could leave a foreign port bound for the United States without a bill of health signed by the United States consul. The President of the United States was authorized to detail medical officers of the Marine Hospital Service to foreign ports to serve in the office of the consul in order to make the necessary inspections of vessels. No vessel arriving in the United States could land its cargo and discharge its passengers without obtaining a certificate from the Federal quarantine officer of the debarkation port that all rules and regulations had been complied with. Both the overseas bill of health and the United States quarantine certificate had to be delivered to the Collector of Customs.

The law covered interstate as well as foreign commerce. The Supervising Surgeon-General of the Marine Hospital Service was required to examine all State and municipal quarantine regulations. If any were deemed inadequate, the Secretary of the Treasury was "empowered to make additional rules." If State and municipal officials failed to enforce rules, the President of the United States was charged with the duty of adopting "such measures as are necessary for their enforcement." If medical research was required in interstate quarantine, the Hygienic Laboratory was authorized to do it.

In order to bring State quarantine stations under the Federal Government the Secretary of the Treasury was authorized to accept and pay a reasonable compensation for any quarantine buildings that any State might wish to surrender.

Early in December 1893, Secretary of the Treasury J.G. Carlisle, brought in by President Grover Cleveland, hailed the success of the new quarantine law. He said that Marine Hospital Service medical officers, assigned to eleven European ports, and the consuls that they served under, had kept cholera from this country.

"It is believed that never before was the disease prevalent at one time in so many different localities throughout Europe," said Secretary Carlisle.

"To the care exercised by the medical officers attached to the various consulates and by the consular service abroad may properly be ascribed the almost total exclusion of cholera from the United States."

These medical officers were: Dr. William J. Pettus, Southampton; Dr. Louis L. Williams, Sr., Liverpool; Dr. Joseph H. White, Hamburg; Dr. Paul M. Carrington, Bremen; Dr. Rell M. Woodward, Rotterdam; Dr. William G. Stimpson, Glasgow; Dr. Milton J. Rosenau, Antwerp;



Dr. E.R. Houghton, Le Harve; Dr. Fairfax Irwin, Marseilles; Dr. Benjamin W. Brown, Genoa; and Dr. George B. Young, Naples.

Surgeon General Wyman established the policy under the 1893 law of assigning medical officers to strategic observation posts in Asia and South America, as well as in Europe. Hong Kong, China, was an important port for an observer to keep in touch with information about the prevalence of epidemics in the Orient. Since 1893, except during World War II, there has always been a Service medical officer in Hong Kong. In the beginning it was used as a training post to prepare promising young medical officers for epidemic and administrative work. Subsequently, the principal duties of the medical officers assigned to the American consulate have been the examinations of visa applicants.

The Federal Government had nine quarantine stations when the 1893 law was passed—Camp Low on Sandy Hook; the Delaware Breakwater station at Lewes, Delaware; the Chesapeake Bay station at Cape Charles, Virginia; Blackbeard Island, Georgia; Dry Tortugas in Florida; Chandeleur Island, changed back that year to Ship Island, Gulf of Mexico; San Diego, California; Angel Island, San Francisco, California; and Port Townsend in Washington State.

The 1893 law made possible the expansion of the list. Pennsylvania and North Carolina soon surrendered their quarantine powers, and other States followed. Surgeon General Wyman made special efforts to cooperate with State and local Boards of Health in initiating the National quarantine system. Before issuing regulations, he held a meeting in New York with State boards of health. In March 1893 he called twenty leading State and local quarantine officers into a two-day meeting in Washington, D.C.

Dressed precisely as prescribed by the 1893 pamphlet titled: "Regulations Regarding the Uniforms of Officers and Employees of the United States Marine Hospital Service, Treasury Department," which he had promulgated, Dr. Walter Wyman, on special occasions, cut a fine figure.

His hat was plumed with two black ostrich feathers. The standing collar of his white shirt showed above his frock coat of dark blue cloth, "double-breasted and made to button to the neck and fastened there with hook and eye; two rows of large Service buttons on the breast, nine in each row." On his shoulders were the epaulettes, "worn only by the Supervising Surgeon General." They were "of gold bullion, the straps two and a half inches wide and six inches long; frog four and a half inches wide; crescent one-half inch in broadest part, bullion three inches long and three-eighths of an inch in diameter." In the frog of the epaulettes was a five-pointed star, and on the strap the corps device of the Service in gold. Five bands of one-fourth inch gold wire lace around each sleeve denoted his grade mark as Supervising Surgeon General, the "lower band two inches from the lower edge of the cuff; the first four bands one-fourth



inch apart; upper band one-half inch above fourth band." The trousers had a black silk braid one-half inch wide down the outer seams.

Dr. Wyman wore, too, the "sash for Supervising Surgeon General" which was "of buff silk and gold thread with silk bullion fringe ends; sash to go twice around the waist, and to be tied behind the left hip; pendant portion not to extend more than eighteen inches below hip." Over this sash the dress sword was worn.

Surgeon General Wyman saw to it that the Hygienic Laboratory was kept abreast of the advances in the bacteriological laboratories of Europe. In 1894 he again sent Dr. Kinyoun abroad for several months. Kinyoun took part in the 8th International Congress of Hygiene and Demography in Budapest, Hungary. He then took a course of instruction at the Pasteur Institute in Paris, France. He went on to Berlin, Germany, for three weeks at Professor Koch's institute.

"I had abundant opportunities given me for observing the treatment of diphtheria by the 'heilserum' as it is called there," he said of the newly-discovered antitoxin.

Dr. Kinyoun completed his trip by visits to bacteriological laboratories in Vienna, Prague, Munich, Hamburg, and London.

Returning to this country, Dr. Kinyoun immediately started the production of diphtheria antitoxin through immunization of horses and drawing off the anti-diphtheria horse serum for inoculation of children who had been exposed.

The minutes of the Conference of State and Provincial Boards of Health of North America, held at the Ebbitt House in Washington, D.C., on December 12 and 13, 1894, carried this December 12th entry:

"An invitation was presented from Dr. Walter Wyman, Supervising Surgeon-General of the Marine Hospital Service, to witness a demonstration by Dr. J. J. Kinyoun of the Marine Hospital Service of the bacteriological diagnosis of diphtheria and preparation of the antitoxin serum. The invitation was accepted for 1 p.m. of the 13th, the following day."

Sixteen States and the Province of Quebec, in Canada, were represented in this meeting of an organization then ten years old. Surgeon General Wyman may have seen at this time the possible advantages of a closer tie between State health authorities and his own health service. At any rate, when he finally secured an act of Congress reorganizing the Service in 1902, the new law provided for an annual conference between the Surgeon General and State and territorial health authorities.

Congress made constant use of the bacteriological laboratory which had been set up so close by. Dr. Kinyoun was asked to report on the ventilation of the House of Representatives. He found illuminating gas in the air, due to leaky gas pipes. The carpet on the floor of the House and in the galleries, he said, had in some places been "saturated with tobacco expectoration" which "tends to make it odorous." He found the air "further

vitiated by persons smoking." He recommended a general overhauling and electric lighting in all parts of the building to exclude the gas leaks.

By 1895, Dr. Kinyoun had found that the fourth floor of the Butler Building was too cramped for his Hygienic Laboratory operations, and he was recommending "transfer to a building better suited to its requirements."

A brilliant young scientist who would soon eclipse Dr. Kinyoun in status and fame was rising within the ranks of the Service. He was Dr. Milton Joseph Rosenau, who was graduated from the University of Pennsylvania Medical School in 1889, and briefly took post-graduate courses in France, Austria, and Germany before he joined the Marine Hospital Service in 1890.

In the anti-cholera campaigns of 1892 and 1893 Dr. Rosenau was assigned to Antwerp. There he intensively studied smallpox in the hospitals devoted to that disease, so that he could do an effective job of screening out immigrants afflicted with it who were departing for the United States. All of the Marine Hospital Service surgeons assigned to foreign ports under the 1893 quarantine law screened out smallpox and other epidemic diseases as well as cholera.

Returning to this country, Dr. Rosenau for a time worked on a joint experiment with Dr. Kinyoun in a somewhat successful attempt to immunize animals against pneumococcal infections. Their 1895 experiments on cats, pigeons, poultry, dogs, horses, and heifers were published under the by-lines of both in the Hygienic Laboratory section of the Marine Hospital Service annual report of 1897.

Early in 1896, Surgeon General Wyman became worried at reports of the prevalence of bubonic plague in China. Dr. Rosenau was ordered to Angel Island, the quarantine station for San Francisco, California, to take charge on March 2. Two months later, the Surgeon General determined to require disinfection of the baggage of all Chinese immigrants. Telegraphic instructions were sent to all quarantine ports on the Pacific coast.

On receiving his instructions, Dr. Rosenau sent a letter to the Board of Health of San Francisco so adroit in its phrasing that the Board unanimously accepted the plan and assured him of hearty cooperation. This letter read:

"Dear Sirs: I am in receipt of a telegram from the Surgeon-General directing me to disinfect the baggage of all Chinese immigrants landing in San Francisco, and I have to respectfully request the cooperation of your board to aid me to carry out this timely precaution. The same order has been issued to the other ports along the coast, and exactly the same measures are being taken at the ports of British Columbia.

"I have also the honor to invite the attention of your board to the fact that I am prepared to make a bacteriological diagnosis of suspected cases of plague, cholera, or diphtheria that may come into

quarantine, and desire to place my services and my laboratory at your disposal.

Very truly yours,  
M. J. Rosenau"

Dr. Rosenau's detailed account of this project was published in the 1896 annual report of the Marine Hospital Service with three full-page action pictures in illustration. The first showed a quarantine boat crammed with Chinese laborers, each with a pigtail hanging down his back, arriving at Angel Island. These men all wore a black san (jacket) and koo (trousers) with kuap'imaio (skullcap) and cloth shoes. The second picture showed all of the Chinese laborers on the Angel Island beach, sitting or standing as they opened their baggage. The third photograph depicted all of them lined up, single file, in jean suits provided by the station for the immigrants to wear while their clothing and their baggage were being disinfected. Angel Island had in its equipment 200 of these jean suits, and the next year was asking for 200 more.

One of Dr. Rosenau's summaries of action taken ran as follows:

"Vessels disinfected, 9; passengers quarantined, 1,034; passengers vaccinated, 43. The 1,034 passengers were bathed and their clothing and all their baggage was disinfected without the passengers themselves being detained in quarantine. Also several hundred bags of mail were opened, each letter punctured, spread out, and fumigated."

Each piece of baggage was labelled with a tag which on its face gave the date of inspection "at the National Quarantine Station, Angel Island, Cal., in accordance with the regulation of the Treasury Department, U.S. Marine Hospital Service. M. J. Rosenau."

That year Dr. Rosenau added to the Angel Island fleet a new \$3,000 steam launch named *Bacillus*. The next year Dr. Rosenau was disinfecting "on account of yellow fever, plague, cholera, and small pox."

To speed up large-scale cleansing with soap and rain water, Dr. Rosenau had erected at Angel Island a new \$5,000 bathhouse, 140 feet long, with 18 hot and cold water rain baths and 18 dressing rooms. Angel Island took over the inspection of immigrants.

That Dr. Rosenau was indeed a paragon was shown by the neat, meticulous way he kept a previously rather sloppy log of Angel Island, still preserved in San Francisco, California. Every entry carried his rubber-stamped signature. However, Dr. Rosenau was human. Two of the rubber-stamped signatures were upside down.

Trouble lay ahead in San Francisco. In Rosenau's 1897 report, he said: "Our relations to the local board of health has been one of opposition on their part to the establishment of the bay inspection service. This attitude was much to be regretted, because it prevented the entente cordiale essential for cooperation. The local quarantine officer insists that the superior authority in all matters relative to the quarantine of this port was vested in his office."



He said this conflict of authority was settled only when the President of the United States, William McKinley, under the power vested in him by the 1893 quarantine act, "detailed me on May 20, 1897, for duty as quarantine officer at the port of San Francisco, California, to enforce the rules and regulations which have been, or may hereafter be, promulgated by the United States."

While the prestige of Dr. Rosenau was growing, that of Dr. Kinyoun was being reduced almost imperceptibly by routine assignments. He conducted a school for State and local public health officers. He studied the disinfection of railway coaches and Pullman cars. He experimented in the use of formaldehyde gas to kill germs. He assembled an exhibit for the 1898 Trans-Mississippi Exhibition in Omaha, Nebraska.

In the annual report of the Marine Hospital Service for 1897, Dr. Kinyoun confessed that he had lost out on his opportunity to be one of the earliest laboratory investigators of the bacillus which caused plague. And plague would be his nemesis.

"In 1894 it was my good fortune to be at the Institute Pasteur soon after Yersin had sent to the institute cultures of the bacillus of the plague," wrote Dr. Kinyoun. "Through the courtesy of Dr. Roux and his assistant, Dr. Borel, I had the privilege accorded me of studying the bacillus and observing the experiments then being made with it. On my departure in October, I was given a culture, which I brought with me on my return.

"Subsequently I made a study of it in order to confirm what had then been written about it. But unfortunately my culture was lost during the next summer, while I was away from the laboratory and the experiments were brought to a standstill.

"Not caring to send for another culture, on account of its extreme virulence, I desisted further in experiments in this line.

"I had no idea at the time that it would be anything more than a laboratory curiosity, and that the danger of its spread to this country was a remote possibility. Since then my views have undergone a decided change."

Dr. Kinyoun then explained that in December 1896 he had succeeded in obtaining another culture; but experiments had proven that it was not plague. The latest information the Marine Hospital Service could offer on this leading health topic, in 1897, was a report from Dr. Henry D. Geddings, who had been sent to Paris to study under Dr. Roux.

Dr. Geddings told how deadly the plague was—"It would seem that the average mortality of the epidemic in India has reached the appalling figure of 90 to 95 percent." He reported that after death the plague microbe was found throughout the body, notably in the enlarged lymphatic glands. He defined the plague as "an acute, contagious, communicable disease, primarily, it is now supposed, affecting the lower animals as rats, mice, hogs, dogs, etc., and by them communicable to man."

However, Dr. Wyman demonstrated in this same 1897 annual report

that he had acquired such a thorough practical grasp of the then-frightening bubonic plague situation that he could put up a good fight against it here in the United States. He included in that report the paper on plague which he had given in March 1897 at a meeting of the Medical Society of the District of Columbia. From time to time, he added to this paper, and published it in 1900 as a pamphlet for the ready use of all the medical officers under his supervision. One of the notes he added was:

"The appearance of the plague in Santos, Brazil, in October 1899 marks an important epoch in plague literature, as furnishing the very first recorded instances of the occurrence of the disease in the Western Hemisphere."

This essay was evidence that Dr. Wyman habitually made use of the world-encompassing medical research facilities which had been set up by Dr. John S. Billings, of the U.S. Army, in the Library of the Surgeon General of the Army. It was on the Mall, a convenient stop for the Surgeon General when going to and from the Butler Building. Dr. Wyman's first paragraph ran:

"The plague, known also as the bubonic plague, *Pestis bubonica*, Levantine, Oriental and black plague, and black death, is a disease which has ravaged from time to time the several countries of Africa, Asia, and Europe almost from time immemorial. The literature on the subject is appalling in extent, a mere enumeration of titles with authors covering 40 pages, royal quarto size, of the *Index Catalogue* of the Library of the Surgeon-General's Office, United States Army, and a score or more of the columns of the *Index Medicus*, published since the issue of the *Index Catalogue* in 1889."

Dr. Wyman credited "the immortal Pasteur and his contemporary Koch," in their establishment of bacteriology as a science, as making possible the 1894 discovery of the plague bacillus in Japan by Dr. Shibasaburo Kitasato, a Japanese bacteriologist who had studied in Koch's laboratory; and simultaneously by Alexandre J. E. Yersin, Swiss bacteriologist at the Pasteur Institute in Paris. Dr. Wyman said the United States was represented in the plague investigations by Dr. W.F. Arnold, of the Navy, "to whom we are indebted for the cultures which form the basis of experiments now being conducted in three laboratories of the United States."

He described the plague bacillus as a "small, short rod with rounded ends, of the nonspore-bearing variety" which multiplies extremely rapidly, grows readily upon ordinary media, and in bouillon forms flakes which rapidly sink to the bottom of the test-tube leaving the liquid above clear.

He said it could be easily killed by disinfectants, such as carbolic acid.

Dr. Wyman gave the method for producing the anti-toxin developed by Yersin, a horse-serum product often successfully used to treat plague patients. Dr. Wyman also gave directions for the making of the Haffkine prophylactic which was developed by Waldemar Mordecai Wolff Haffkine, a Russian bacteriologist at the Pasteur Institute in Paris, to prevent plague

and to reduce its death rate. The Hygienic Laboratory, one of the U.S. laboratories working on plague, stocked up emergency supplies of both agents.

Dr. Yersin and Dr. Haffkine both began their experiments to curb cholera in the Pasteur Institute laboratory in Paris, France. In fact, in 1892, Haffkine, a Russian Jew born and educated as a zoologist in Odessa, Russia, was selected by Louis Pasteur to take the place of Yersin as an investigator of cholera. Yersin had suddenly gone to Indochina to work on bubonic plague. In Paris, Haffkine developed an attenuated anti-cholera vaccine. The mortality among the inoculated as compared with the uninoculated was reduced by 72 percent in two years.

The British Ambassador in Paris, Lord Dufferin, a former Viceroy of India where cholera raged, wrote to British authorities in India suggesting that facilities be offered to Haffkine to continue his cholera studies there. Haffkine arrived in Calcutta, India, in March 1893, and in the course of a year inoculated 25,000 persons. In two and a half years he had inoculated 42,000. Mortality from cholera was reduced 72 percent.

Because he became ill with malaria, Haffkine returned to Europe late in 1895, in time to visit Pasteur on his death bed. Of Pasteur he said: "All the honour for the results which may possibly come out of my efforts should be repaid to him, to his sacred memory."

When he returned to India in 1896, the government asked him to go to Bombay to investigate bubonic plague, then a pandemic. He immediately set up a laboratory, October 7, 1896, in Grant Medical College. Dr. Yersin already was working on plague in Hong Kong. Yersin was attempting to cure the plague with an antiplague serum. Haffkine started to develop a method for preventing infection by creating an immunization against the disease organism. Both were successful in time to give Surgeon General Walter Wyman effective medical weapons against bubonic plague when it appeared in Hawaii in 1899 and in San Francisco, California in 1900.

Haffkine's prophylactic was ready in December 1898 and he gave it first to himself. By August 1899, requests for it were coming into Bombay from all over the world at such a rate that he had to have more room to make the vaccine. Lord Sandhurst, Governor of Bombay, formally opened the enormous Old Government House at Parnel as the Plague Research Laboratory with Haffkine as Director in Chief. Various experiments had proven that while the Haffkine antiplague serum did not prevent the infection, it did reduce liability to attack to less than one-third what it was among the noninoculated; and the mortality rate for those who took it by 85 percent. Queen Victoria decorated Haffkine with the Order of the Indian Empire.

Several years later, 19 persons died of tetanus in a Punjab, India, village after being inoculated with Haffkine vaccine. But Haffkine was able to prove that the contamination took place right in the village, and not in the laboratory where it was made. Haffkine prophylactic continued



to be the preferred treatment for plague until the Haffkine Institute in Bombay, India, renamed for him, proved, in field trials, that the modern wonder drug streptomycin, if given early enough, can cure 100 percent of the bubonic plague cases.

On February 25, 1898, the United States battleship *Maine* was blown up in the Havana harbor. Surgeon General Wyman, of the Marine Hospital Service, had a quarantine office functioning in Havana, Cuba, at the time of the sinking of the *Maine*. Sanitary Inspector W. F. Brunner was in command of its staff of four. Immediately that office was besieged by refugees and the inspectors were busy from dawn to sundown boarding ships.

Dr. D. E. Dudley, one of the four, reported: "In the harbor the daily inspection of newspaper dispatch boats alone would almost represent a normal day's work for the boarding officer. Merchant vessels of every description were coming and going, as, war being imminent, ships were anxious to improve their opportunity in supplying a city, which was soon to be blockaded, with provision and merchandise. Passenger steamers for the States left daily with a large number of people . . . It was only by the utmost watchfulness of your well-nigh exhausted officers that the diseases common to Havana were not introduced into the United States at this time."

The Havana office was closed by the war on April 10, and was reopened when it had ended September 24.

Surgeon General Wyman recorded with pride "the signal service performed by Sanitary Inspector W. F. Brunner, a physician, at Havana, just prior to the declaration of war, in securing and forwarding to the War Department complete plans and specifications of the military defenses of Havana—information that was used by the General of the Army, as I am informed unofficially, in the preparation of plans of attack, and which was obtained by Dr. Brunner at personal expense and great personal risk."

At the request of Secretary of War R. A. Alger, Surgeon General Wyman detailed eleven Marine Hospital Service officers to serve on transport ships taking American troops to Havana and to conquered ports in Puerto Rico. All of them either had had experience in the boarding and cleaning of vessels at quarantine stations or had special knowledge of yellow fever and other tropical diseases. They were on duty with the War Department from August, 1898 to April 1899.

One of these medical officers, Dr. Samuel B. Grubbs, told in his autobiography of the informal way he went to war. He said that in mid-summer of 1898, rumor reported that Marine Hospital Service officers were to be put on Army transports, "yellow fever experts disguised as ship surgeons." He said, "I was the first one to be ordered to report to the Quartermaster General in New York. He assigned me as ship surgeon to the *Sedgwick*. I was given no written recognition as a yellow fever expert, but was acknowledged verbally."

He explained that the Southern States were afraid that yellow fever would once more jump from Havana, Cuba, to Key West, Florida, and added, "But as it turned out, typhoid fever was much more dangerous."

He said that the United States soldiers, both in Cuba and Puerto Rico, ate fruit and uncooked food, drank water everywhere, disregarded flies—and came down with typhoid.

"Had the Spaniards been able to continue the fight in a few more weeks typhoid fever would have reduced our forces to the point at which conquest would have been impossible," he said.

The Spanish-American War was entirely encompassed in one calendar year—1898. The fighting, made more colorful by the Rough Riders under Leonard Wood and Theodore Roosevelt, consumed but four months, April 21 to August 12. The treaty of peace which granted Cuba independence and gave the United States three Spanish possessions—the Philippines, Guam, and Puerto Rico—was signed December 10. It made the United States a colonial power. Hawaii was annexed that same year. It further focused the attention of medical men on yellow fever, which had appeared in Havana every year for 140 years.

Surgeon General Wyman lost no time in getting a foothold for his Marine Hospital Service in Hawaii. He had succeeded in getting a special and separate appropriation through Congress early in his administration titled: "Preventing the Spread of Epidemic Disease" which before it could be expended required the signature of the President of the United States as official authorization. For many years public health emergencies were met by this appropriation, commonly known as "PSED funds."

A far-seeing example of their use by Dr. Wyman was the sending of Dr. D. A. Carmichael to Hawaii in 1898 "for the sanitary inspection of vessels" and "to make report upon the establishment of a marine-hospital relief station as soon as Hawaii shall have been given a territorial form of government, and to make a complete report on leprosy in the Hawaiian Islands." The memorandum he wrote on this subject said: "The expense involved in carrying out this recommendation is chargeable to the appropriation for preventing the spread of epidemic diseases." It was approved by William McKinley.

After the Spanish-American war, Surgeon General Wyman decided to give Dr. Rosenau, then only twenty-nine years old, Dr. Kinyoun's important position as head of the Hygienic Laboratory in Washington, D.C.; and to send Dr. Kinyoun into Dr. Rosenau's position as quarantine officer in San Francisco, California.

He would not court criticism by making this exchange too obvious. First he sent Rosenau, in the autumn of 1898, to Cuba to organize post war public health protection. He sent Dr. Kinyoun to San Francisco in the spring of 1899, making Dr. E. K. Sprague Acting Director of the Hygienic Laboratory until October 25, 1899, when Dr. Rosenau could take charge.

The sending of Dr. Kinyoun to San Francisco was not well received



Courtesy National Library of Medicine, PHS

Dr. Milton Joseph Rosenau, who was appointed by Surgeon General Wyman to succeed Dr. Kinyoun as Director of the Hygienic Laboratory.

by the medical men of Washington, D.C. They gave Dr. Kinyoun a farewell dinner at Rauscher's Restaurant, Saturday, May 20, 1899. Dr. W. W. Johnson said that no city, especially the National Capital, could afford to lose men of Dr. Kinyoun's attainments. Dr. George M. Kober said, "It seems a pity that this modest, unassuming scientist should be divorced from a laboratory which already has accomplished so much and promises still more for the future usefulness of this branch of the public service."

Dr. Rosenau put into effect in Cuba the United States quarantine system. The coast of the island was divided into five sectors, with a commissioned medical officer of the Marine Hospital Service in charge of each. Quarantine was conducted from the port cities of Havana, Matanzas, Nuevitas, Santiago, and Cienfuegos. The rigorous methods Dr. Rosenau had



worked out in San Francisco at Angel Island were enforced through "disinfecting barges." He had these barges outfitted for large scale fumigating of objects, for steaming of clothing in the hold, and for baths given in tremendous numbers on the upper deck. The ship *Protector* operated as a "disinfecting barge" in the harbor of Havana, and the *Rough Rider* operated in San Diego harbor.

Dr. Rosenau's essay on "disinfecting barges" was also used to organize the quarantine services of the Philippines and Puerto Rico. Dr. Rosenau required there must be the same efficient management, the same military discipline, on these barges as in a quarantine station.

He specified: no litter allowed; bells struck at regular hours for routine work and meals; all on board vaccinated against smallpox; and "in case of working against cholera or plague, they may be immunized with Haffkine's prophylactic or Yersin serum."

In his annual report for 1895, Surgeon General Wyman put in his claim to the title *Public Health Service* by dividing the report into two parts and using that phrase as a sub-head over the whole second half. He continued doing this each year until 1899. Congress voted to include it in the title in 1902. The first part of each of these annual reports concerned all medical and hospital services to all the Treasury operations, such as seamen, medical officers for revenue cutters, and inspection of steam vessels. Under the general title *Public Health Service*, Surgeon General Wyman reported on quarantine, sanitary reports and statistics, the Hygienic Laboratory, sanitary inspection services, and epidemics.

As a weapon against water-borne diseases such as typhoid fever, cholera, and dysentery, the Surgeon General in his 1896 annual report urged a law empowering the Marine Hospital Service to investigate the pollution of interstate streams. He laid special stress on the Potomac River which brought typhoid close to the Members of Congress.

As to the cause of yellow fever, Surgeon General Wyman was blithely off on the wrong foot. In 1897, Professor Joseph Sanerelli, an Italian physician then at the University of Montevideo, announced in the annals of the Pasteur Institute in Paris that yellow fever was caused by the *Bacillus icteroides*. His basis for that announcement was that he had found the bacillus in fifty percent of the small number of cases he had studied. Surgeon Henry D. Geddings, of the Marine Hospital Service, then at the Pasteur Institute, made some special studies under Professor Roux of Sanerelli's theory. He then returned to the United States because the Surgeon General had determined to have him make further studies in Rio de Janeiro, Brazil.

However, the disease had broken out in New Orleans and Wyman instead sent both Dr. Geddings and Surgeon Eugene Wasdin to work in a New Orleans laboratory. Surgeon General Wyman said in his 1897 report that when the number of cases began to decline in New Orleans, he determined to detail these two men as a special commission to Havana, Cuba,

"where material is available throughout the year." This was approved by the Secretary of the Treasury and the President of the United States. By November 1, 1897, Geddings and Wasdin had in the words of Surgeon General Wyman, "entered upon their work under the official cognizance of the government of Cuba."

Dr. Henry R. Carter, who had become recognized as the Service's foremost yellow fever specialist, had arrived at some definite answers quite contrary to this theory before the Geddings-Wasdin experiments were completed.

Both Dr. Carter and a fellow Service officer working on yellow fever, Dr. Joseph H. White, had independently and simultaneously figured out that it took six days for yellow fever to incubate in the person who had contracted the disease. When Dr. Carter had personally announced this at the Quarantine Board of the Service, the Board read to him a letter just received from Dr. White making the same announcement.

Dr. Carter became completely fascinated with the puzzle of the rest of the considerable length of time it took for a second case of yellow fever to arise from a first case. He called this period, when it wasn't inside the human body, the "extrinsic incubation" period. The yellow fever was incubating, but not in man.

Obviously, in the light of future discoveries, it was the period in which the yellow fever was in the body of its vector, the mosquito *Aedes aegypti*. Its minimum would be precisely the time it takes for the yellow fever virus, after being sucked up by the mosquito, to go through its body and back to its salivary glands where it could be injected into a human being. But the mosquito was not yet known as the vector, and Dr. Carter arrived at the "extrinsic incubation" period by pure logic.

Yellow fever had broken out in the summer of 1898 in two small, isolated country communities twelve miles apart, Orwood and Taylor, Mississippi. It would be possible to trace who caught the fever from whom.

Dr. Carter phrased his question: "How long in time in every particular instance, determinable at Orwood, was it between the development of a case of yellow fever in an uninfected place and the development of the next case (and other cases) contracted (indirectly) from the infection of the first case?"

Because he was in general charge of combatting yellow fever for the Marine Hospital Service, Dr. Carter could not stay long at Orwood. However, he so convinced the State Board of Health of Mississippi of his theory that the Board furnished him funds to hire two physicians in each place to follow up the yellow fever cases. The records were complete in October 1898. But Dr. Carter was sent to Cuba to help set up the U.S. quarantine system there, and did not have time to publish his findings until the winter of 1899-1900.

However, he had his answer, which he first announced in this way: "I would place the period of extrinsic incubation as generally not less



Courtesy National Library of Medicine, PHS

Dr. Henry Rose Carter, yellow fever expert of the Public Health Service, who formulated his "extrinsic incubation" theory in 1898, but did not have time to publish it until the winter of 1899-1900.

than ten days; indeed, it may fairly be placed somewhat higher."

Soon he was emphasizing to everyone that he had said "somewhat higher" as the minimum period later was proven by Major Walter Reed to be twelve days.

He talked his minimum extrinsic incubation period theory wherever he went—and he was bound for the strategic yellow fever spot—Cuba, where since 1881 Dr. Carlos Finlay had been contending it was caused by the *Aedes aegypti* mosquito. As a pure matter of scientific fact, Dr. Finlay had everything necessary to prove his theory except the extrinsic incubation period which Dr. Carter had just established.

Dr. Carter was assigned to Cuba on June 22, 1899. Precisely what his function was there has been explained by Dr. Grubbs, assigned to start



the quarantine station at Cienfuegos, Cuba. Dr. Grubbs told how delighted he was when he learned Dr. Carter was coming to see him in 1899.

"He was undoubtedly the foremost yellow fever fighter of that day," said Dr. Grubbs. "In the loose type of organization which we had in Cuba, he could not be officially considered my chief, but so far as the yellow fever was concerned, his slightest suggestion would be an order to any of us. No one questioned his authority in this field."

Dr. Grubbs told of Dr. Carter's talking about his still-unpublished findings at Orwell and Taylor, Mississippi.

"A person with the fever cannot give the disease to someone else until a certain time goes by," Dr. Carter told Dr. Grubbs. "That's what I call the period of extrinsic incubation, and mind you it is the place, the house, that gives the disease to the next one; and that only after at least twelve days when the person who was sick is either dead or almost entirely recovered. You might say that yellow fever plus house plus twelve days plus non-immune equals a new case."

Dr. Grubbs added: "So under the soft Cuban moon I heard from Carter himself that night his three principles. He told them over and over again in his high piping voice."

The three principles were: Sulphur fumes will kill yellow fever. Yellow fever lingers in a house, but not in a tent. The non-immune person catches it from the house when twelve days have passed.

The conversation wandered to other doctors interested in yellow fever, Dr. Grubbs remembered, and Dr. Carter said: "There's a doctor named Carlos Finlay. He's been telling us yellow fever is transmitted by a mosquito, a *Culex*. He's got it all worked out and is mighty sure of himself. I don't hear so much of him now as a few years ago. He can't prove it and knows it, so I guess he's getting tired to talking theories."

However, that very summer, Dr. Carter actually was working with Dr. Carlos Finlay. In a footnote to his own posthumous book, *Yellow Fever, an Epidemiological and Historical Study of Its Places and Origin*, Dr. Carter stated that he had suggested mosquito studies to Finlay "in the summer of 1899" as a test of the Finlay doctrine.

"This was begun at Las Animas," wrote Dr. Carter, "but was interrupted by the writer's leaving Cuba to work in the Key West epidemic of that year." Las Animas was and is the infectious disease hospital in Havana, Cuba. Dr. Grubbs said there were always "two hundred or so" cases of yellow fever there.

Dr. Carter was ordered by a telegram from Surgeon General Wyman from Cuba to Key West on September 1, 1899. Yellow fever had broken out in a commercial hotel and was spreading through the whole island of Key West. The Surgeon General also sent telegrams to two steamship lines to cut off ships bound to Key West, and to the Governors of all the Southern States, warning them of yellow fever. Dr. Carter set up on the nearby

island of Dry Tortugas, where he himself had earlier served as quarantine officer, a detention camp for non-immunes with a water guard of a schooner and three launches. He was then ordered on to New Orleans and another yellow fever epidemic.

Dr. W. E. McAdam, the Medical Officer in Charge of the Marine Hospital in Key West was left in charge of all the epidemic operations. He caught the fever and died on October 12. A report he had written September 30 was forwarded to the Surgeon General after he died. It said that the infection had been found to be so general that all ideas of limiting it were soon abandoned, "all efforts being directed to confining the disease to the island (Key West) and getting rid of the non-immunes."

"It was first estimated there were about 1,500 non-immunes in the city exclusive of children," he said. "Of these, in the neighborhood of 500 have left, the majority going North by the Marlory boats; the rest through the Tortugas detention camp."

An official September 29 report of the Key West epidemic gave a total of 1,350 yellow fever cases and 68 deaths.

In New Orleans up to November 3, Dr. Carter reported 71 cases and 20 deaths, a mortality of 28 percent. Frost came October 31 and quarantine was lifted that day. Dr. Carter wrote his New Orleans report and returned to his post in Cuba.

Thus it was that as the 1800's drew to an end, Dr. Henry Rose Carter, the yellow fever expert of the Marine Hospital Service, had been side-tracked by two epidemics from research which might easily have made him the discoverer of the vector of yellow fever. Even the full credit of what he had discovered was largely taken from him.

Dr. Carter had decided to publish his yellow fever findings as a trilogy. The first paper would be: "A Note on the Interval Between Infecting and Secondary Cases of Yellow Fever from the Records of the Yellow Fever at Orwood and Taylor, Miss. 1898." The second would be: "The Period of Incubation of Yellow Fever"—that is, in man. And the third: "A Note on the Spread of Yellow Fever in Houses. Extrinsic Incubation Period."

While Dr. Carter's first report on his discovery of the extrinsic incubation period in the two Mississippi towns was still in manuscript, a high official of the Marine Hospital Service deleted from it three significant paragraphs. If this manuscript still survives, its whereabouts are not known.

However, Dr. Louis L. Williams, Jr., who later interned under Dr. Carter at the Baltimore Marine Hospital, said: "I saw the original manuscript in 1914 with the significant paragraphs blue-pencilled and marked by the word 'omit.'"

As a small boy, Dr. Louis L. Williams, Jr., had played on Dry Tortugas island where his father, Dr. Louis L. Williams, Sr., was assigned as quarantine officer in 1895. He grew to manhood in close relationship with Dr. Carter and his quest for the cause of yellow fever.

The theory of several veteran officers of the Public Health Service

who knew Dr. Carter was that the blue-pencilling was done by Dr. Henry D. Geddings, who with Dr. Eugene Wasdin on July 10, 1899, had issued a report confirming the discovery by Professor Sanarelli that yellow fever was caused by the *Bacillus icteroides*. They had been credited with this as a scientific advance by Surgeon General Wyman in his 1899 annual report. These men all said that the reason given to Dr. Carter for the deletion was that the three paragraphs were unproven theory, whereas the rest of his paper was proven scientific fact. Dr. Carter did preserve a copy of the original.

The three paragraphs, (a), (b), and (c), marked "omit," explained "extrinsic incubation" as follows:

That yellow fever is not directly transferable from sick to well—but indirectly—the material leaving the person of the patient undergoing some change in the environment before it is capable of infecting another man.

That the time required for this change is evidently the time of "extrinsic incubation." Of the nature of this change nothing is predicated—

(a) it may be a change in physical state of the excretion as when sputum of tuberculosis must become dry and pulverized before it produces infection;

(b) it may be transmitted only by a host, analogous to the tick in Texas fever;

(c) it may have been incapable of producing infection when it left the patient, but, under proper conditions, was capable of such a change of development that it became capable of affecting man.

On December 12, 1899, the keeper of a public health log in Honolulu, island of Oahu, Hawaii, penned this entry:

"Dr. Day was called at 9 o'clock last night to attend a sick Chinaman at Wing To Tai's store, Nuuanu Street, found patient suffering from high fever and noticed suspicious swellings. Patient died this morning. The Chinaman's name was Ah Kau. Surgeon D. A. Carmichael, of the United States Marine Hospital Service had been sent to Hawaii by Surgeon General Wyman, and was present at the autopsy that day which established Ah Kau's case."

The deadly plague had reached Hawaii on its journey from China, where it had long been rife, to the United States.

At 3:00 p.m. on Sunday, December 31, 1899, the last day of the dying 1800's, the Board of Health of the also dying Republic of Hawaii, started the first of its "sanitary fires" against plague. The fire destroyed from number 32 to number 333 on the street where Ah Kau died.

In Washington, D.C., Dr. Wyman, Surgeon General of the Marine Hospital Service, polishing his paper on plague, was ready for it.





## Chapter 10:

### EPIDEMICS HELP WIN PUBLIC HEALTH TITLE

Surgeon General Walter Wyman

1891–1911

#### (Part Two)

As the 1800's bowed out and the 1900's came in, Surgeon General Walter Wyman was concentrating on two major problems—keeping bubonic plague from the shores of the United States and persuading Congress to include the words *Public Health* in the title of his agency, still called the Marine Hospital Service.

The Surgeon General believed that a third major problem, the cause of yellow fever, had been solved by Professor Joseph Sanarelli as being the *Bacillus icteroides* and proven by two medical officers of his own service. He couldn't have been more wrong.

Because plague had appeared in some Mediterranean ports from which immigrants were coming to this country, Surgeon General Wyman sent identical telegrams to twelve of his young medical officers: "Proceed immediately to European Port stopping at Bureau for instructions." He could then tell all questioners he had twelve experts bound for Europe even though he had not yet found time to arrange their destinations. When plague broke out instead in Hawaii, four of these young men were left at European consulates in leading European ports, London, Berlin, Vienna, and Paris, to benefit the Service with their knowledge of communicable diseases.

Day after day in January 1900, the Honolulu Board of Health met to condemn blocks where plague had appeared, often ordering them to be burned. As the plague swept on, the biggest fire of all was planned for January 20. It got completely out of hand, and consumed some thirty-five city blocks. Strong winds spread the fire blazing at Kaumakapili Congregational Church all through the business blocks and human hovels of dirty, rat-infested, jerry-built Chinatown. Kerosene storage sheds blew up. So did fireworks stored for the Chinese New Year.

The Kaumakapili church had two very tall steeples, doubling its effectiveness as an unreachable flame-thrower. The Hawaiian king who had it built early in the 1800's reasoned that if a man had two ears to hear better and two eyes to see better, a church should have two steeples to better reach God.

Still available at the Honolulu Board of Health is the log including the Saturday, January 20, 1900, entry which says:

"Dr. Howard reported the sanitary fire in block 15 had got beyond



Courtesy State Department of Health, Honolulu, Hawaii

The disastrous Chinatown fire of January 20, 1900, in Honolulu showing the flames being scattered by the steeple of Kaumakapili Congregational Church.

control of firemen. The steeple of the Kaumakapili church had caught fire and the flames were threatening the whole of Chinatown.

"Afternoon session, 3 p.m. Dr. Day made a motion that all the people now in detention at the Kerosene Warehouse Camp who have not been exposed to infection since the 11th of January be released from quarantine. Motion carried.

"Mr. A. W. Carter recommended that the work of providing



refugees from the Chinatown conflagration be divided among the various willing volunteers.

"The refugees, estimated at 6,000 people, were apportioned to the various camps and the meeting adjourned."

The 6,000 Chinese thus made refugees constituted about one-sixth of the population of Honolulu, then 39,300.

But the plague-fighters did not change course. On Monday, January 22, they were meeting again, condemning property to sanitary fires. There were 35 cases of plague in Honolulu in January 1900. There were only ten cases in February and nine in March. At the close of March, plague died out in Honolulu, not to reappear until May of 1901. Apparently the sanitary fires accomplished their purpose.

Plague first made its appearance in the continental United States, at San Francisco, on March 6, 1900. The case was that of a dead Chinese, brought to a Chinese mortuary and reported by a police surgeon to the local health officer as perhaps plague. The board of health acted promptly, calling a meeting for the next day. To this meeting was invited Dr. Joseph Kinyoun, long the foremost Federal scientist, now stationed at Angel Island, as Federal quarantine officer for San Francisco. Dr. Kinyoun at this meeting was given specimens of the diseased glands of the dead Chinese to determine by animal tests if his death was due to the plague.

But Surgeon General Wyman in Washington, D.C., was not waiting. On March 7 he saw a San Francisco press dispatch that triggered action. It said that the assistant police surgeon, Dr. Frank P. Wilson, reported the case of a dead Chinese to Health Officer A. P. O'Brien as "suspicious of plague."

Immediately, Dr. Wyman wired James M. Gassaway, surgeon in charge of the San Francisco Marine Hospital, for more details. Dr. Gassaway telegraphed:

"Glands from suspected plague submitted by board to Kinyoun for examination, and Kinyoun inoculated monkeys, rats, and rabbits. Chinatown, 12 blocks, cordoned; streetcars stopped, but to be allowed to run tomorrow under strict rules of no passengers allowed outside cars and each car disinfected daily. Dwelling and undertaker's shop of suspected case has been formaldehyded. . . . Informed board you had directed us to give all assistance in our power . . ."

The next day, on March 8, Surgeon General Wyman sent to Dr. Gassaway a 284-word telegram prescribing the treatment of the Chinatown plague. The Surgeon General told Dr. Gassaway that there were 200 bottles, or 2,000 doses of Yersin Serum in San Francisco, and that 300 more bottles had been expressed to him the day before. There were 130 tubes of Haffkine prophylactic, containing 1,950 doses in San Francisco and he would in two days send 13,000 more doses "and in all probability 10,000 doses weekly thereafter."

Dr. Gassaway that day wired Surgeon General Wyman there were six suspected cases in Chinatown. However, from New Orleans he got an ominous wire from Dr. Arthur H. Glennan, in charge of the Marine Hospital there: "Confidentially informed thirty plague cases, San Francisco, Chinatown." Dr. Wyman wired back directing Glennan to "proceed immediately to San Francisco for special temporary duty." March 8 had been a busy day for Surgeon General Wyman on a problem clear across the continent.

On March 11, Dr. Kinyoun reported that his animal experiments definitely had demonstrated plague. A rat and two guinea pigs inoculated with the glands of the dead Chinese had died, a monkey was very ill. The monkey soon died.

From that time, wires flew thick and fast from the office of the Surgeon General of the Marine Hospital Service in Washington to San Francisco. Surgeon Glennan wired his arrival at the Occidental Hotel. Dr. Wyman told him to call on Dr. Gassaway—"If further developments in Chinatown you will be specially detailed for duty there. If no developments within a day or two, you will be ordered to begin inspection of Pacific coast quarantine . . ." With his usual forethought, Dr. Wyman sent Dr. Glennan inspection blanks, in case he had to move on for lack of a crisis in Chinatown. He had only begun his inspection trip when he was ordered back to San Francisco. Presence of the plague, denied by San Francisco authorities and ignored by its newspapers, had been confirmed to the outside world by an Associated Press dispatch of March 21, 1900, and by a Scripps-McRae dispatch the next day. There had been, by that time, four deaths.

The Associated Press said: "Both Dr. Kellogg, city bacteriologist, and Dr. Kinyoun, federal quarantine officer, declared today that after a most careful examination of the bacilli from glands of victims they were satisfied plague was cause of the death. Hundreds of inspectors were sworn in today to make thorough inspection of Chinatown. Entire district being investigated and fumigated."

Apparently, Chinatown had its own methods of resistance. Dr. Glennan wired Dr. Wyman on March 29: "Official reported deaths this month Chinese quarter one-half less than annual rate, showing concealment and burial of bodies for fear of autopsies and cremation. Sick also smuggled out to surrounding country." Dr. Wyman replied: "Write full report on reasons for your opinions. Wire daily report."

How completely Dr. Wyman was running the fight against San Francisco plague was shown by two entries in his 1900 report. One was a wire from Dr. Gassaway: "Local board of health urgently requests more copies of your pamphlet on plague for use and distribution. Theirs are given out." The other was a notation that immediately on receiving a wire from Dr. Kinyoun on May 2 confirming another case of plague "the Bureau instituted measures to furnish Surgeon Kinyoun with an ample supply of the

curative serum of Yersin and some 30,000 bottles of Haffkine prophylactic."

The local board of health, having first obtained the cooperation of the Merchants' Association and the Chinese Six Companies, the commercial powers in Chinatown, announced the presence of plague in San Francisco and decreed a house-to-house inspection. Guards were put at all exits of the city to prevent a general exodus from Chinatown. Dr. Kinyoun was told to notify the transportation companies that certificates to show they had taken the Haffkine prophylactic would be required of all departing Chinese. But the quarantine law of 1893, under which they had been operating, carried no penalty for not producing a certificate.

From Washington, Dr. Wyman, on May 15, 1900, sent this wire to Dr. Kinyoun: "The law of 1890 holds good and can be applied . . ." This earlier law did provide such a penalty.

Surgeon Kinyoun asked to be empowered to act under the law of 1890. The request was taken all the way up to President McKinley, who gave written approval for the Secretary of the Treasury, L. J. Gage, to promulgate the 1890 regulations.

This brought down a bristling counter attack from the San Francisco newspapers, commercial interests in Chinatown, and the Governor of California, Henry T. Gage. The State Board of Health failed to back up the local board of health in its quarantine of Chinatown.

And the Chinese commercial interests, including the Chinese Six Companies, appealed to the Federal court for an injunction against the quarantine. As foreigners, they had access to the Federal court.

On May 28, a restraining order was granted by Judge William W. Morrow, of the United States Circuit Court, declaring the quarantine established by the local board of health to be illegal. This decision said that the special measures against the inhabitants of Chinatown, being racial, were contrary to the Constitution. The regulations made by the local board of health were held to be invalid as under local legislation they should have been made by the board of supervisors.

Immediately, the board of supervisors backed up the board of health, authorizing it to take any action necessary. The board of health ordered an absolute cordon around Chinatown; requested the cooperation of the Marine Hospital Service; and started plans for a detention camp to accommodate 7,000 persons on Angel Island or Mission Rock.

Surgeon Kinyoun received threats that revenue cutters on patrol duty to keep the Chinese from fleeing San Francisco would be run down and destroyed. He wired to Washington for help from the Navy. The Navy Department ordered its training station in San Francisco to cooperate with the Marine Hospital Service in protecting the patrol boats.

Another injunction suit was brought, and the injunction granted. On June 14, 1900, the board of health was forbidden to remove the Chinese to the detention camp. The Federal Court ordered the abandonment of



the cordon around Chinatown. It granted a writ of habeas corpus in the case of a quarantined Chinese.

Surgeon General Wyman, who hitherto had battled only state and local authorities in his many forays into quarantine, now was stopped in full stride by a Federal court.

On that very day, June 14, 1900, the authority of Surgeon General Wyman was extended to the Hawaiian Islands. The United States had taken over fully, and President Dole had become Governor Dole. Surgeon O. A. Carmichael of the Marine Hospital Service, took his pen in hand to start a log which eventually would be labelled: "Medical Officer's Journal From June 14, 1900, to June 30, 1910." The first day's brief entry in this log of the Hawaiian Quarantine Service ran: "Removed furniture, books and records of the Service from the U.S. Consulate to offices of the Service fitted up in the Custom House on Allen Street."

The next day's entry, June 15, started: "I received control of quarantine matters in the Hawaiian Islands on behalf of the United States and receipted to the Minister of the Interior, late Republic of Hawaii, for the public property of the Quarantine Station on Manliola Island, Honolulu."

From there the journal went briskly on with the appointments of quarantine officers at the various islands, and with such items as:

"Cargoes from San Francisco are now being disinfected at the channel wharf under my supervision."

"Forwarded to the Surgeon General proposals for the care of seamen at the Queen and Victoria hospitals." Promptly, Assistant Surgeon John W. Kerr, MHS, who had been assigned to San Francisco quarantine soon after he joined the Service in 1898, was detailed to attend the patients at the two hospitals and "to prescribe for the patients presenting themselves to this office for treatment."

That same year Dr. Kerr was sent on to Hong Kong for three years of the important experience and training available there in smallpox, bubonic plague, and cholera.

As the halfway point of the year 1900 approached, Surgeon General Wyman was confronted by a major challenge to the Sanarelli theory on yellow fever which he was backing—but in which the major yellow fever fighter in his Service, Dr. Henry R. Carter, did not believe. The scene of this challenge was Havana, Cuba, where Carter at the time was Chief of Quarantine Officers of Cuba.

On June 25, Dr. Walter Reed, a Major of the Army Medical Corps and bacteriologist of the Army Medical School, arrived in Havana determined to prove there that yellow fever was not caused by the *Bacillus icteroides* as claimed by Dr. Joseph Sanarelli, and corroborated in Havana by Doctors Eugene Wasdin and Henry D. Geddings of the Marine Hospital Service. Major Reed with Dr. James Carroll, another bacteriologist who worked as an Army contract surgeon, already had published one paper refuting the Sanarelli claim. Reed and Carroll were confident that the

*Bacillus icteroides* was a strain of the hog cholera bacillus and in no way influenced yellow fever.

Major Reed had been appointed by Army Surgeon General George M. Sternberg the chairman of the Army's Yellow Fever Board organized to solve the enigma of that disease and make Cuba safe for the non-immune American army of occupation.

All Cubans were considered immune to yellow fever. It was believed that they were born that way until it was pointed out that they probably were immunized by light, unrecognized cases of it in childhood. It was Spanish and other immigrants who kept the disease flaring, year after year, in Havana.

Major Reed had his laboratory assistant, Dr. Carroll, appointed with him to the Yellow Fever Board. Its other two members were Army physicians already at work in Cuba, Dr. Jesse Lazear, a contract surgeon who had been assigned to Columbia Barracks, the Army post just outside the village of Quemados, close to Havana, in February of 1900; and Dr. Aristides Agramonte, contract surgeon assigned to Military Hospital No. 1 in Havana, an immune who therefore performed all of the Army's yellow fever autopsies in Havana, Cuba.

It was because of a conflict of opinion at one of Agramonte's autopsies made in 1899 that Major Reed had come to Havana in 1900. An Army private, Patrick Smith, had become ill of a malady reported as "suspicious of yellow fever." The leading Havana yellow fever experts, Dr. Carlos Finlay and the Army's Dr. William C. Gorgas, went in to diagnose Private Smith. Wasdin and Geddings, of the Marine Hospital Service, then in Havana completing their tests of the Sanarelli theory, also asked to see him, and to take blood cultures. After examining the cultures they reported that Smith had a positive case of yellow fever. Finlay and Gorgas disagreed. Private Smith died. Dr. Agramonte, who performed the autopsy with all these physicians and others present, pronounced the cause of death typhoid fever. Dr. Geddings expressed no opinion. All the rest but Dr. Wasdin agreed with Dr. Agramonte. When the two Marine Hospital Service medical officers made their report in Washington, D.C., later that year, they included Patrick Smith among the 13 out of 14 yellow fever cases in Havana in which they had found the *Bacillus iceteroides*.

Word of the Patrick Smith autopsy got to Walter Reed before Wasdin and Geddings had published. Major Reed quietly made a trip to Cuba, went over the records on the case, and questioned Agramonte and other doctors. When Reed came back to Havana in June of 1900 he concentrated so thoroughly on completely disproving the Sanarelli theory that the testing of Finlay's mosquito theory, which he also was planning, waited for three mosquito-filled summer months.

However, yellow fever's most implacable foe, Dr. Henry Rose Carter, did not wait. He was, at the time, in a delicate position. His Surgeon General was not backing him, but his opponents. Nevertheless, Dr. Carter

sought out both Dr. Walter Reed and Dr. Jesse Lazear and gave them invaluable evidence to help them in their quest for the cause of yellow fever.

If the Army's Yellow Fever Board, (often called the Yellow Fever Commission), was to prove that the mosquito was vector of the yellow fever, it had no choice but to experiment on human beings. At that time it was not known that a certain species of monkeys in the forests of South and Central America also is susceptible to yellow fever.

In Havana, the way had been almost miraculously opened to a successful human experiment. Major General Leonard Wood, previously a physician in the Army Medical Corps, then Colonel of the Rough Riders, the cavalry regiment in which Theodore Roosevelt was the Lieutenant-colonel, had been made Governor General of Cuba on December 20, 1899. He was the highest officer in authority when the subject of mosquito tests on human beings to find out if these insects carried yellow fever came up when Major Walter Reed reached Havana. Governor General Leonard Wood warmly approved the use of human volunteers to test the yellow fever theory. The three non-immune members of the Yellow Fever Board, Reed, Carroll, and Lazear agreed that Board members would first undergo the mosquito experiments on which they would ask for volunteers.

It is also to be noted that Major William C. Gorgas, the Army's yellow fever expert, became Sanitary Officer of Havana on February 15, 1900, making possible a definitive test there on the effect of mass killing of mosquitoes.

Important evidence of just how thoroughly Dr. Henry R. Carter, of the Marine Hospital Service, outlined to Doctors Reed and Lazear of the Army's Yellow Fever Board precisely the experimental work to be done on yellow fever recently became available in the Carter collection at the National Library of Medicine. The following details were found there:

Dr. Carter stated that he gave to both Dr. Reed and Dr. Lazear reprints on his article, "Interval Between Infection and Secondary Cases of Yellow Fever from the Records of the Yellow Fever at Orwood and Taylor, Miss., 1898" and published in the *New Orleans Medical Journal* in May 1900. This was the paper which let Reed and Lazear know that about two weeks must elapse after the mosquito had fed on a yellow fever patient before it could inject the disease into another person.

"This was naturally discussed with Reed and Lazear, and its bearing on the conveyance by a host and especially a mosquito host, gone over in conversation and in letters," Dr. Carter wrote.

The precise reprint of the Orwood and Taylor, Mississippi, pamphlet which Dr. Reed gave to Dr. Lazear, and which he asked him to return as it was the only one he had left, had been kept down the years along with two other small items.

One was a single sheet of paper, with the three paragraphs cut from Carter's original Orwood manuscript, slightly altered because of a scientific discovery, typewritten on one side of the paper. On the other side



was a handwritten note from Carter to Lazear saying that all which he was documenting had been discussed in conversation.

This single sheet of paper which Dr. Carter gave to Dr. Lazear showed that he now believed that the yellow fever was carried by a host—and that host probably was the *Aedes aegypti* mosquito as claimed by Dr. Finlay.

On the typewritten side of this paper carrying three paragraphs which had been deleted from his manuscript about Orwood, Mississippi, Dr. Carter had taken out the phrase which had termed his hypothetical host “analogous to the tick of the Texas cattle fever: and had substituted “analogous to the transmission of malaria.”

The message which Dr. Carter had written to Dr. Lazear on the other side of his single sheet of paper ran:

“My dear Dr. Lazear:

“I think this is about the argument that I made to you yesterday which you can, naturally, examine better when written out. As I said, to me the argument from Dr. F’s theory has much in its favor—to me it is more plausible although his observations as I have read them are not convincing, scarcely corroborative.” (By “Dr. F.” I believe he meant Dr. Finlay.)

The second accompanying item was a more clearly printed list of the houses studied at Orwood and Taylor, Mississippi, with notes handwritten by Carter on the back which showed that he was propagating yellow fever mosquitoes and intended to give them to the Army Yellow Fever Board for experimentation.

These notes were:

“Take m. eggs & larvae to Lazear

Put out more quinine bottles at Sospeciosa,

Ex. those already hatched

Give L. my mem.”

Dr. Carter also took time to tell both Dr. Reed and Dr. Lazear that yellow fever definitely was not carried from person to person by cloth, as most people then believed, probably in the hope that it would speed them on to human experiments using mosquitoes.

This he recorded in a marginal note on a pamphlet he wrote in November of that same year (1900) while he was ill in Johns Hopkins Hospital, Baltimore, Maryland. Dr. Carter told how he had been convinced by the tremendous amounts of soiled clothing contained in baggage going through Customs Inspections in New York that yellow fever could not possibly be carried in fabrics. He also cited the baggage going through the Mediterranean ports in Spain, adding “yet I think we have had no yellow fever reported in the Peninsula since the epidemic of 1870.”

Right at this point was Carter’s marginal note: “This was the argument I made to Reed and Lazear when they brought up the subject of transmission by fabrics.”

Major Walter Reed was deeply impressed by the yellow fever study

in Orwood and Taylor, Mississippi, which had been given him by Dr. Carter. He showed this document to two British scientists, Doctors Herbert E. Durham and Walter Myers, who arrived in Havana July 18, 1900, for a week's study of yellow fever for the Liverpool School of Tropical Medicine. This school had sponsored the experiments with malaria mosquitoes on human subjects by which Major Ronald Ross, of the British Medical Service proved in 1898 that malaria was carried by mosquitoes. Major Reed took the two British scientists through his laboratory and showed them the mosquitoes which he was propagating there for the yellow fever experiments as suggested by Dr. Carter.

The two Liverpool scientists in their report on Cuba, published in the *British Medical Journal* September 8, 1900, said: "We also had the pleasure and advantage of meeting Dr. Carter of the U.S. Marine Hospital Service . . . Of the interesting and important facts which have been ascertained, those elucidated by Dr. Carter in his study of outbreak at Orwood and Taylor (Miss.) in 1898 are second to none."

The beautiful and sanitary little village of Quemados, close to Columbia Barracks, had a yellow fever epidemic of fifty cases with twelve deaths that summer. The disease spread to soldiers in the Barracks. This gave ample opportunity to test human cases as to the truth or falsity of the Sanarelli theory, which to Dr. Reed was of first importance in the Board's work on yellow fever. Doctors Reed and Carroll took cultures from the blood of living cases and from the bodies on which Dr. Lazear performed autopsies. They soon amassed enough negative findings to silence forever the claims that yellow fever was caused by the *Bacillus icteroides*. Dr. Agramonte's independent findings in Havana, Cuba, agreed with theirs.

At this point in the research, Major Walter Reed was ordered back to Washington, D.C., to work with Dr. Victor Vaughan in completing their final report on typhoid fever, the more deadly killer of the Spanish-American War. This typhoid fever project has been suggested by Dr. Stanhope Bayne-Jones to be as important to medicine as the yellow fever work of Dr. Walter Reed. As Reed left Cuba, Dr. Lazear was almost ready to infect some of the mosquitoes he had bred and try them out on volunteers.

It so happened that Dr. Albert E. Truby, who had been one of the medical officers at Columbia Barracks, was on the ship, *The Rawlings*, on which Dr. Reed sailed from Cuba on August 10, 1900. In his book, *Memoir of Walter Reed*, Dr. Truby said:

"Since Dr. Finlay had spent years experimenting on his theory, I do not think that any member of the Board had any expectation of meeting with the sudden success which resulted from Lazear's preliminary experiments. Otherwise Reed would either have delayed his mosquito work or had his trip to the United States postponed."

But Dr. Reed did go. Dr. Lazear, who had been so thoroughly briefed by Dr. Carter, took charge. On August 16 he allowed himself to be bitten by an infected mosquito but remained well. On August 27 he subjected

Dr. James Carroll, who was skeptical of the mosquito theory, to the bite of a mosquito which had fed on four cases of yellow fever. Dr. Carroll came down with a severe illness diagnosed as yellow fever on September 2. Said Dr. Truby: "Victory had come to Lazear, who, working entirely alone, had produced the first experimental case of yellow fever in man."

Lazear's second successful case was carried in the records as "XY." It was that of Private William H. Dean, a volunteer bitten on August 31 by the same mosquito which had infected Dr. Carroll, and also by three other mosquitoes who had fed on yellow fever cases.

Apparently Dr. Carter was still in Havana while Dr. Lazear was conducting his two successful mosquito experiments at Columbia Barracks nearby. If Lazear ever used the mosquito eggs and larvae Carter intended to offer to him, there is no record of it. Dr. Reed recorded that the Board's initial mosquito stock came from Dr. Finlay.

If Lazear consulted Carter on his experiments on humans, neither left a record. On September 14, 1900, Surgeon General Wyman ordered Dr. Carter from Havana to Louisville, Kentucky. Dr. Lazear had the day before been bitten by an infected mosquito, and had contracted the yellow fever which caused his death on September 25. All the records that he had kept on the cases of Dr. Carroll, Private Dean, and himself were in a small notebook which was found in the blouse of the uniform which he had last worn, and which had been taken off when he was sent to the isolation ward of Columbia Barracks to die.

Dr. Reed returned to Cuba on October 3. He found in Dr. Lazear's notebook the date that he had to have in order to report his human experiments. But he quickly realized that this scanty data, on only three cases, did not constitute absolute scientific proof that the mosquito was the vector of yellow fever. He would have to conduct broader human experiments with the proof made more airtight.

However, Dr. Reed drafted from Lazear's notes the second part of a paper titled "The Etiology of Yellow Fever—a Preliminary Report," which would stake his claim to this discovery when he would have it proven. He still put first in his paper the findings he had made before he left Cuba, titled "*Bacillus Icteroides* (Sanarelli) as the Cause of Yellow Fever" in which he ruled out that bacillus by his table of negative results. The second part he titled: "The Mosquito as the Host of the Parasite of Yellow Fever." There he reported Carroll and "XY" had been deliberately infected. He said that Dr. Lazear, the experimenter, had been accidentally infected. Dr. Truby later revealed that Dr. Reed had found in Lazear's notebook notations which Reed thought were entries about mosquitoes which he had applied to himself.

Said Dr. Truby: "Reed believed that when Lazear was taken sick, he worried lest his life insurance become forfeited if it became known he had deliberately infected himself with a fatal disease. Was this the reason for Lazear's incomplete entries about himself in the notebook?"



Dr. Reed started back to the United States with this report completed on October 14. He personally presented his "Preliminary Note" which he signed with the names of all members of the Yellow Fever Board, including Lazear, at the Twenty-eighth Annual Meeting of the American Public Health Association held in Indianapolis, Indiana, October 22 to 26, 1900. In this paper he mentioned the previous mosquito experiments of Drs. Finlay and Ross and gave lasting credit to the work of Dr. Carter with the following paragraph:

"We were also much impressed by the valuable observations made at Orwood and Taylor, Miss., during the year 1898, by Surgeon Henry R. Carter, United States Marine-Hospital Service. A note on the interval between infecting and secondary cases of yellow fever, etc. (Reprint from New Orleans Medical Journal, May 1900.) We do not believe that sufficient importance has been accorded these painstaking and valuable data. We observe that the members of the yellow fever commission of the Liverpool School of Tropical Medicine, Drs. Durham and Myers, to whom we had the pleasure of submitting Carter's observations, have been equally impressed by their importance. (*British Medical Journal*, Sept. 8, 1900, pp. 656-657.)"

Dr. Wasdin issued a bitter reply, questioning if any of the three cases reported by Reed had actually resulted from a mosquito carrier.

Early in November, so late that a mosquito famine threatened, even in Cuba, Dr. Walter Reed was back in Cuba to prove his case. Army Surgeon General Sternberg refused him funds for his experiment, but General Leonard Wood supplied \$10,000. He set up the isolated Camp Lazear, named for his heroic co-worker, and there, before the year ended, worked out his brilliant, world-known, scientific proof—not only that yellow fever was carried from man to man by the *Aedes aegypti* mosquito, but also that man could sleep, night after night, in the dirtiest clothing and bedding polluted by yellow fever patients, and not catch that disease. Dr. Reed produced yellow fever by mosquito bites in 5 out of 7 volunteers, kept in absolute isolation.

Dr. Reed made his final report on this magnificent experiment at the Pan American Medical Congress held in Havana, Cuba, on February 6, 1901.

In this report, Dr. Reed included the discovery made by Dr. Carter as fundamental to his results. What he said was: "In our opinion, the experiments above described conclusively demonstrate that an attack of yellow fever may be readily induced in the healthy subject by the bite of mosquitoes (*C. fasciatus*) which have been previously contaminated by being fed with the blood of those sick with yellow fever, provided the insects are kept for a sufficient length of time after contamination before being applied to the person to be infected." But he did not mention Dr. Carter by name. The mosquito which Reed called *C. (for Culex) fasciatus* is now known as *Aedes aegypti*.

Dr. Carter wrote to Dr. Reed complimenting him on his final report. Dr. Reed in his reply gave Dr. Carter the accolade that he so obviously had earned.

This handwritten letter, on the stationery of the Army Medical Museum and Library, and dated February 26, 1901, is now in the National Library of Medicine. It reads:

"My dear Dr. Carter:

Please accept my sincere thanks for the sentiments expressed in your kind letter of Feb. 21st—I value highly your opinion of our work—since I know of no one more competent to pass judgment on all that pertains to the subject of yellow fever—You must not forget that your own work in Mississippi did more to impress me with the importance of an intermediate host than everything else put together—

With best wishes,

Sincerely yours,

Walter Reed."

The present Public Health Service has a slender and posthumous claim to Dr. Walter Reed, the man who put the capstone on the yellow fever monument. On November 1, 1902, he was assigned to duty as Librarian, in charge of the Library of the Surgeon General's office, now the National Library of Medicine, a part of the Public Health Service.

Dr. Walter Reed died following an operation for appendicitis on November 23, 1902. Reed held the office for three weeks and two days, and was active in his role of Librarian for 13 or 14 days.

Dr. Carter, who in 1900 had published the statistics of Havana's long history of yellow fever, dramatically described how Walter Reed's discovery had made possible the elimination of yellow fever from Havana.

"In 1899 and 1900 'campaigns of cleanliness' were waged against the yellow fever in Havana," he said. "All the money that could be called for was forthcoming and all the men. Skilled engineers were in charge with the whole force of military power behind them. In 1899 General Ludlow was in command and Major Davis was chief sanitary officer, in 1900 it was General Wood and Major Gorgas. And I can give you my word that the work was well done. Havana was as clean as a cobblestone-paved city can be kept.

"We began too, with a city almost free from yellow fever. There had been but 31 deaths from yellow fever among civilians the year ending March 31, 1899, and there were only five more to August. The fever then spread, and we had that year to March 31, 1900, 111 deaths among the civilian population.

"In 1900 the work was probably better organized and was certainly as well done, yet the deaths that year were 301, although this included some mortality among the military—say 12 or 15. The average civil death rate from yellow fever in Havana for the ten years prior to the war was 211 per annum. We had then this year more deaths among the civil

Feb. 26, 1901.

My dear Dr. Carter,

Please accept my sincere thanks for the sentiments expressed in your kind letter of Feb. 21<sup>st</sup> - I value highly your opinion of our work since I know of no one more competent to pass judgment on all that pertains to the subject of yellow fever. You must not forget that your own work in Mississippi did more to impress me with the importance of an intermediate host than everything else put together.

With best wishes,

Sincerely, yours,

Walter Reed.

Courtesy National Library of Medicine, PHS

Letter in handwriting of Dr. Walter Reed showing that he gave Dr. Henry Rose Carter of the Public Health Service credit for convincing him that an "intermediate host" (the mosquito) carried yellow fever from man to man. This letter is at the National Library of Medicine.



population than normal in Spanish times; nearly one-third more. Indeed, 1900, after all our work, gave a higher mortality than any of the ten years prior to the war except 1893. So far as yellow fever was concerned, the sanitary work was a failure.

"The next year the plan was changed. The stegomia (*Aedes aegypti* mosquito) was accepted as the only means of conveying yellow fever and all effort was based on this belief.

"All cases of yellow fever were screened as soon as found, and they were found early and the screens were kept in place too. If the patient went to the hospital the house was immediately fumigated with either pyrethrum or sulphur. If he did not, it was screened and humidified as soon as possible; the houses adjacent being also fumigated. This was the key of the plan: (1) To keep mosquitoes from the patient. (2) To kill all mosquitoes which had access to him.

"There was also a general war waged against all mosquitoes in town, draining and oiling pools of water; emptying, covering, or oiling water in containers. The presence of mosquito larvae on premises was made a public nuisance, and punished by fine."

Dr. Carter particularly pointed out that bedding and clothing were not touched. And yellow fever disappeared.

"Gentlemen, this was not luck," he said. "It was not accident. Havana had had yellow fever for 140 years. It was freed from it, in the summer of 1901, *by the measures taken*."

"I am glad that the same man, Dr. Gorgas, had charge of the sanitary work in both 1900 and 1901, so that everything should be the same except the *plans of the work* and the *difference of the results*—in 1900 a failure; in 1901 a brilliant success."

One month later, Dr. Carter, assigned by Surgeon General Walter Wyman to Anacon, Panama Canal Zone, was on his way to more than five years work in helping Dr. Gorgas free the Canal Zone from mosquitoes, thus making possible the building of the Panama Canal. Two other Public Health and Marine Hospital Service officers were assigned with Dr. Carter: Dr. James C. Perry and Dr. Claude C. Pierce.

Later in 1904, Sir Ronald Ross, the discoverer of the mosquito as the carrier of malaria, came to the United States to make a speech at the Great International Congress of Arts and Sciences held at the World's Fair in St. Louis. At the invitation of both Colonel Gorgas and Surgeon-General Walter Wyman, Dr. Ross went on to Panama and there met Dr. Henry R. Carter. Later he nominated Dr. Carter for the Nobel Prize which he himself had received. But Dr. Carter never received this prize. Dr. Ross met Dr. Gorgas in New York before he sailed back to London.

As long as he lived, Dr. Carter did not permit his letter from Walter Reed nor any account of his contributions to the Yellow Fever Commission, to be published. Dr. Louis L. Williams, Jr. said that he had repeatedly urged Dr. Carter to publish an account of how much he had

contributed to the solution of the yellow fever enigma and that Dr. Carter had always replied: "I will never do anything which would in any way detract from Walter Reed's great discovery."

The letter to Dr. Carter from Walter Reed, and the documents showing his long-deleted paragraphs relating to his theory of a possible tick or mosquito host were first published in 1951 in the history written by Dr. Ralph C. Williams titled: *The United States Public Health Service 1798-1950*.

Dr. Carter's daughter saved for the Carter collection in the National Library of Medicine part of a letter regarding Dr. Walter Reed's discovery in which Dr. Carter wrote: "Few scientific discoveries—medical or otherwise—are in their entirety the work of any one man. He who puts the capstone on the completed structure gets—as he should—the credit for it, but the foundation and walls may—and generally have been—built by many hands."

While Dr. Walter Reed was completing his successful experiments in Cuba, in December 1900, Dr. Walter Wyman was engrossed in his battle over the plague in San Francisco. On December 26 of 1900, he sent Dr. J. H. White, chief of the Division of Domestic Quarantine, out there to investigate the Federal-State conflict.

On January 9, 1901, Dr. White went with Dr. Kinyoun and other physicians to view the body of a Chinese who had died at 720 Jackson Street, whose case in the then-prevailing custom, was diagnosed as plague by Dr. Kinyoun in his laboratory at Angel Island, and as syphilis by State authorities.

Dr. White telegraphed Dr. Wyman:

"I desire to add my testimony, for whatever it may be worth, to that of the others in stating that it is my honest opinion that this man died of true bubonic plague."

Obviously, the court orders enjoining the Federal Government from fighting this disease the previous June had by no means enforced an injunction on the disease itself. But the newspapers and many medical men of California and its Governor, Henry T. Gage in particular, continued to insist that there was no plague in California.

Of the California newspapers, Dr. W. H. Kellogg, of San Francisco's local board of health, said:

"They launched a campaign of vilification against the Health Board and the Federal Quarantine officer, Dr. Kinyoun, that for unexampled bitterness, unfair and dishonest methods, probably never had been and never again will be equalled."

Joining in this campaign, Governor Gage in a message to the legislature on January 10, 1901, blamed "the recklessness of certain city officials of San Francisco, assisted by a federal officer, one Doctor Kinyoun" for "the fearful shadow cast upon the state."

"Could it have been possible that some dead body of a Chinaman

had innocently, or otherwise, received a post mortem inoculation in a lymphatic region by someone possessing the imported plague bacilli, and that honest people were thereby deluded?" the Governor asked in this message.

The long-persecuted Dr. Kinyoun wired Surgeon General Wyman:

"Governor has by implication charged me being accessory to inoculating dead bodies with imported plague germs in order to foist upon the community plague scare."

That same day, January 10, Dr. White sent Dr. Wyman a telegram which told the political situation—"Governor will not try to discover the truth if he can escape doing so."—and also gave his own recommendation: bring in the best expert on bacteriology in the United States.

On January 19, 1901, Secretary of the Treasury L. J. Gage, appointed three famous bacteriologists to make an independent investigation of the plague in San Francisco. This independent plague commission included: Professor Simon Flexner, of the University of Pennsylvania; Professor F. G. Novy, of the University of Michigan; and Professor L. F. Barker, of the University of Chicago.

Angrily Henry T. Gage, Governor of California, telegraphed William McKinley, President of the United States:

"I have been informed that the Treasury Department has sent a commission of experts to examine the pretended plague cases heretofore reported . . . which commission is about to commence the investigation, ignoring state authorities in the matter and proceeding in line with reports heretofore made by Dr. J. J. Kinyoun to the Surgeon General of the Marine Hospital Service. I hope that in this matter of vital interest to the people of California there is no intentional discourtesy on the part of officers directed by the Treasury Department to supervise the Investigation."

L. J. Gage, Secretary of the Treasury, wired back that the investigation was being made by experts entirely disconnected with any Department of the Government and that no discourtesy was intended.

Governor Gage demanded a reinvestigation with a Commission composed half of State, half of Federal employees. This was denied. The Governor of California then asked that final action on findings of the Commission on plague be not taken until he could consult with Federal authorities in Washington.

On March 1, Dr. Kinyoun telegraphed Surgeon General Wyman that he, Kinyoun, had been reliably informed that Governor Gage had called to Sacramento a secret conference of State health authorities, commercial interests and publishers of San Francisco newspapers. The publishers had agreed not to print the findings of the plague experts. A delegation had been sent to Washington to appeal to the President for suppression of the plague report and to ask for the dismissal of Dr. Kinyoun.

Five days later, the Secretary of the Treasury received the report of





Courtesy National Library of Medicine, PHS

Dr. Simon Flexner, chairman of the independent plague commission, composed of three famous bacteriologists, which conclusively proved that Dr. Joseph J. Kinyoun of the Public Health Service had correctly diagnosed the disease that hit San Francisco's Chinatown in 1900 as bubonic plague.

the experts, Drs. Flexner, Novy, and Barker, verifying the diagnosis of plague. The California group formed by Governor Gage apparently were already on their way to Washington. On March 9, they called on the Secretary of the Treasury who called in Surgeon General Wyman.

After a joint morning conference, Dr. Wyman was instructed to make an agreement with the California delegation that afternoon to clean up Chinatown and cooperate in ending the plague. The agreement was that he was forced to require the dismissal of Dr. Kinyoun. The final paragraph of his report on that agreement read: "Surgeon J. H. White, now in San Francisco, is the officer of the Service who will be the representative of the Bureau and of the Department in this matter, and who, it is understood, is entirely acceptable to all parties."

Dr. Wyman sent a confidential letter to all state health boards, telling them of the federal-state agreement and of the appointment of Dr. Joseph H. White. White remained from January to June 1901 in San Francisco, where he then was replaced by Dr. Arthur H. Glennan.

Under the agreement the inspecting, cleaning and disinfecting of the houses in Chinatown began on April 8, 1901. It continued until the plague died out, despite the small amount of opposition.

Dr. Kinyoun had done his laboratory work in Angel Island. On June 21, the Marine Hospital Service set up a laboratory at 641 Merchant Street in Chinatown to continue inspection of premises and do such autopsies as were required.

In an old laboratory logbook saved to the present, the story of the San Francisco plague from December 6, 1901, until the U.S. Plague Laboratory at 641 Merchant Street was closed out on April 29, 1905, told of the conflict with vivid freshness.

Day after day the jottings of Dr. M. J. White, no relative of his predecessor Dr. Joseph H. White, and of his assistant in charge of the laboratory, Donald H. Currie, narrated the continuing obstructions of California leaders to the federal efforts against plague.

On January 10, 1902, three Chinese died at the Oriental Dispensary "and upon advice of Judge Maguire the Six Companies refused to send bodies to morgue."

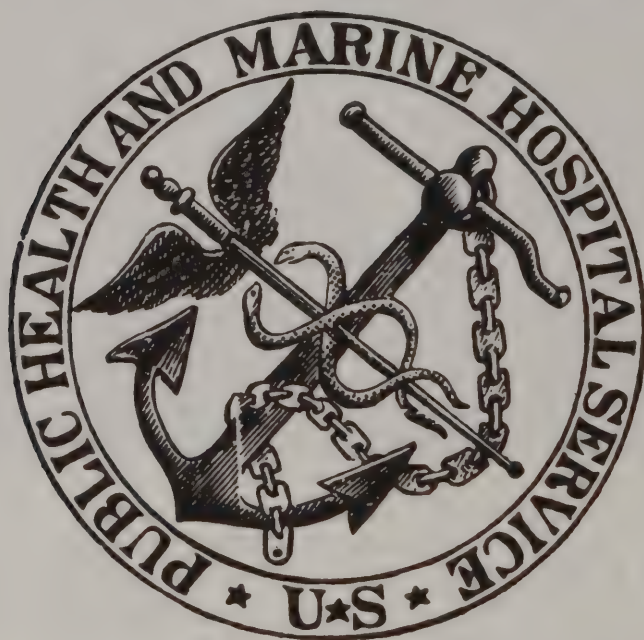
When a system was at last worked out whereby bodies of suspected plague victims were turned over for autopsy, Dr. Stone of the San Francisco Board of Health, who was required to be present at all these autopsies as the official witness, proved himself a master of delaying tactics. By May 29, Dr. White had been so angered by his many searches for the always-missing Dr. Stone that he ended his entry with this sentence, "It is my impression that Dr. Stone purposely stayed away." On May 10, the entry said: "Delay caused by Dr. Stone, 3 hours and 10 minutes." On July 3, "Stone delayed autopsy of Ho Bow, 829 Clay Street 1¼ hours." On July 4, "Delay 2 hr. 15 min. caused by Dr. Stone on autopsy of Chew Ham Bow, 767 Clay Street, ends by not coming at all and letting MHS autopsy the body." July 14 brought this bitter entry. "Called Dr. Stone again but he was out so the Speaker said (the Speaker however spoke exactly like Dr. Stone himself and probably was him.)"

Dr. Kinyoun was ordered to Detroit, Michigan, on April 6, 1901.

On June 28, 1901, he was sent as a health inspector to Yokohama, Japan, and Hong Kong, China. On September 7, 1901, he was sent on to British Columbia to investigate smallpox. Then feeling that he had not been given the backing he deserved by the Federal Government, he resigned from the Marine Hospital Service. Later he accepted a position in the District of Columbia Health Department, Washington, D.C., where he happily worked in a laboratory for many years.

The shooting of President William McKinley at the Pan-American Exposition in Buffalo, New York, on September 6, 1901, brought into power on his death, September 14, a more dynamic President, Theodore Roosevelt, who would favor a firmer Federal hand in dangerous epidemics such as the San Francisco plague. Dr. Eugene Wasdin was on duty for the Marine Hospital Service at Buffalo. He was called in to help operate on President McKinley for removal of the bullet. Here indeed was the end of an era. One of the two Marine Hospital Service surgeons who didn't prove the Sanarelli yellow fever theory was there at the death. Epidemics had at last convinced this country that it had a Public Health Service and might as well acknowledge that fact.

On July 1, 1902, President Theodore Roosevelt signed a new law titled: "An Act to increase the efficiency and change the name of the



Courtesy Public Health Service

A change in the official seal was made in 1902 as a result of the law signed by President Theodore Roosevelt which reorganized the *Marine Hospital Service* and changed its name to *Public Health and Marine Hospital Service*.



United States Marine Hospital Service." This act did much more than to change the name to "Public Health and Marine Hospital Service of the United States."

It changed Dr. Wyman's title from Supervising Surgeon General to Surgeon General, connoting not mere supervision but real direction.

Administrative divisions listed into law were marine hospitals and relief, domestic quarantine, foreign and insular quarantine, personnel and accounts, sanitary reports and statistics, and scientific research.

The Hygienic Laboratory was increased to four main divisions. To Bacteriology and Pathology a single division, were added Chemistry, Pharmacology, and Zoology.

An advisory board to the Hygienic Laboratory was set up. It was to consist of three competent experts appointed by the Surgeons General of the Army and Navy and the Secretary of Agriculture to serve without pay as ex-officio members; and of five non-governmental members "skilled in laboratory work in relation to public health" to be appointed by the Surgeon General with the approval of the Secretary of the Treasury to receive \$10 a day and expenses while in conference.

The 1902 law further provided for an annual meeting of State and Territorial Health Officers with the Surgeon General. This arrangement in itself legalized the supremacy of the Federal Government in the field of public health. In order to secure uniformity in statistics, the Surgeon General was specifically empowered to prepare and distribute to the State and Territorial health officers "forms for the compilation and collection of statistics" as to mortality, morbidity, and other details collected as vital statistics. All down the years since, the annual meeting of State and Territorial health officers with the Surgeon General has furnished an important forum for the discussion of health subjects and for the passage of resolutions to promote the public health, and stimulate action on new and pressing problems.

The Surgeon General was empowered to call a special conference of State and Territorial health officers or quarantine officers "when the interest of public health would be promoted." He was required to call such a conference "upon the application of not less than five State and Territorial boards of health, quarantine authorities, or State health officers."

In his 1902 annual report, Surgeon General Wyman said:

"With the new name, the new duties, and increase of facilities provided by the act of July 1, 1902, the Service enters upon a new and advanced stage of its existence. The possibilities of its usefulness can scarcely be realized at the present time. There is little doubt that more may be developed out of the law in coordinating the labors of the national and State health authorities and in evolving and prosecuting practical measures for improving the sanitary condition of the United States than can be appreciated by a cursory

examination of the act. There has been provided by the Congress during the past year a foundation, broad and strong, the essential element of which is a service more than one hundred years old, upon which may be built a sanitary structure worthy of this nation."

July 1, 1902, certainly was a lucky day for Dr. Wyman. For he received that day, as a surprise package, another potent health law just signed by President Roosevelt. It was titled: "An Act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in such articles, and for other purposes."

Dr. Wyman confessed in his 1902 annual report that this law setting up a national system of biologics standards which would soon become known as "The Heart of the Hygienic Laboratory" had never been referred either to the Treasury Department nor to its Marine Hospital Bureau for a report. He claimed, however, that his Bureau "had been considering for some time the preparation of a bill of this kind and had gathered considerable material necessary for its preparation." He added that the Medical Society of the District of Columbia had taken up the matter and had consulted the Bureau for advice "which was freely given."

Dr. Wyman reported that the biologics bill had come to the floor of Congress through the respective District of Columbia Committees in the Senate and the House. Public health bills, such as the change of name law, were regularly processed by the Committee on Interstate and Foreign Commerce in the House of Representatives and the Senate Committee on Public Health and National Quarantine.

The new law on serums and antitoxins stated that no such product could be sold in any State, Territory, or the District of Columbia which had not been "propagated and prepared at an establishment holding an unsuspended and unrevoked license issued by the Secretary of the Treasury." This official also had the power to send his agents to inspect such plants.

Even though a board consisting of the Surgeons General of the Army, the Navy, and the Public Health and Marine Hospital Service was set up to prepare regulations under which license could be given, the enforcement of the Act in all of its provisions was placed upon the Secretary of the Treasury. He simply turned the whole thing over to the only place in his domain which obviously would be able to handle it—the Hygienic Laboratory, which soon would have the new building which had been authorized in 1901.

Many years later, Dr. James P. Leake, who had charge of the licensing of serums and vaccines at the Hygienic Laboratory from 1913 to 1922, was told a "truth stranger than fiction" story of how this important service got its start.

Dr. Leake was informed that physicians in the District of Columbia had become deeply concerned about the adulteration of smallpox vaccine

and diphtheria antitoxin. There were also loud complaints from other States about deaths caused by impure vaccines, sometimes containing tetanus germs. All through the 1901-1902 session, District of Columbia physicians were importuning Congress for a local law. But the session was drawing to an end and nothing had been done.

"I was told that at this point a District of Columbia physician, Dr. Zachariah T. Sowers, was struck by the strategic position which he happened to occupy," said Dr. Leake. "He had, as his personal patients, the Vice-President, who presided over the Senate, the Speaker of the House, and the chairmen of the District of Columbia committees in charge of this local bill in both houses.

"Dr. Sowers telephoned them all. He asked the two presiding officers if each would recognize the District of Columbia committee chairman if he should get up. Then he telephoned the chairmen asking them to get up.

"Someone had the bright idea of changing the text of the bill to make it National instead of local in scope. Dr. Sowers got the bill passed entirely by acclamation, at the last minute of the session.

"When I was told this story it seemed reasonable to me. The Biologics Act obviously was written for the District of Columbia as the Secretary of the Treasury and not the Surgeon General was put in charge of enforcement. So I called Dr. Sowers and told him this story I had heard, and he confirmed it."

With the 1902 law giving him firm support, Surgeon General Wyman went to San Francisco in December 1902, and for six days took a guiding hand in plague negotiations. Thriftily he combined this trip with attendance on his way there at the annual convention of the American Public Health Association in New Orleans. Governor Gage was in San Francisco when Dr. Wyman arrived, and he called first on him "as the chief officer of the State board of health." He then called on Dr. John M. Williamson, president of the city board of health and its health officer, Dr. Vincent P. Buckley. Accompanied by two Service officers, Doctors A. H. Glennan and D. H. Currie, he inspected the plague laboratory. Then, with a representative of Governor Gage, he visited Chinatown. After another close inspection of the laboratory, he took Dr. Currie and the Chinese interpreter of the Service, and, in his own words, "made a still closer inspection of Chinatown, visiting the worst places." Taking with him the attorney of the Chinese Six Companies and Dr. Glennan, Surgeon General Wyman visited the Governor-elect, Dr. George C. Pardee, in nearby Oakland. Dr. Pardee had been a member of the Oakland Board of Health. Surgeon General Wyman called on the Mayor, and attended a meeting of the city board of health. He visited the Chinese Six Companies "and had an interview with them concerning the situation." He summed up the result of all this activity in his annual report as follows:

"The Surgeon General left San Francisco on Monday, December



22. His personal observation confirmed the fact that the efforts of city health officers in San Francisco in the eradication of the plague infection had been carried on under unusual difficulty and lack of support of the then-existing State health authorities.

"As the result of the visit a cordial understanding was reached and the way prepared for future cooperative action, after the inauguration of the new State officers in January of the following year."

Governor Gage went out fighting. In his final message to the State legislature on January 6, 1903, he attacked Dr. Kinyoun, made a wordy denial of plague cases in California, but finally recommended the removal of Chinatown. His State board of health held over, but with one vacancy.

There was no question at that time as to the subject on which the first special conference of the Surgeon General with State and Territorial health officers would be called—bubonic plague. It was still a sore subject with the Surgeon General—and seven States whose health officials were not precisely pleased with the attitude of Governor Gage of California, requested it.

After a conference with Dr. Glennan, of the Public Health and Marine Hospital Service, the Governor, Pardee, selected Dr. Matthew Gardner to represent California at the Plague Conference in Washington, D.C., on January 19, 1903, and his name was sent to the legislative assembly to fill the vacancy on the State board of health.

Thus, Dr. Gardner was witness in Washington, D.C., to one of the most complete censures ever voted on any State, with Surgeon General Walter Wyman as presiding officer and twenty-two States taking part.

Largely as a result of the California plague controversy, each succeeding Surgeon General made it a point to persuade the Congress to place the authority for making decisions as to control of epidemics and medical matters in his hands. The basis for this was that such decisions were medical or public health and should not have political influences brought to bear.

On February 3, 1903, Governor Pardee, of California, appointed a joint health officers and commercial committee to carry out recommendations made by the Washington, D.C., Plague Conference. Two days later, Surgeon General Wyman sent Dr. Rupert Blue to lead the plague campaign, replacing Dr. White, who had been transferred to Mobile, Alabama.

Dr. Blue appeared at the moment when events began to go right in the plague fight. In three months, he had assumed command of the campaign in San Francisco with the departure of Dr. Arthur H. Glennan for Washington, D.C., to take charge of the Interstate Quarantine Division. Dr. Blue became such a National hero through his activities in Chinatown, that he almost automatically became the next Surgeon General upon the death of Dr. Wyman in 1911.

On February 10, 1903, Dr. Blue called a meeting at the plague laboratory at which, the record says, "the preliminary plan for the eradication of plague in Chinatown was discussed and made plain to all." A new city board of health immediately accepted this plan.

A door-to-door canvass was instituted to inform the people. When a resident was not at home in the daytime, the canvassers returned at night. Loose garbage and rubbish were cleared away. Around the wharves and in the sewers, traps and poison boards were put out for the rats. Unclean rooms, floors and closets were sprayed with a carbolic acid solution. Streets were swept and sprinkled with hydrochloric acid solution "three times a week, rain or shine." Chlorinated lime was placed in closets, urinals, backyards, and basements.

In March, Governor Pardee appointed a new State Board of Health. Dr. Blue jotted down in the *Journal*: "It is thought that each member is liberal and fair and will be willing to acknowledge plague should it be found." It had then been more than thirty days since the last plague case. Before the month was over, plague had broken out again.

Inspections of Chinatown revealed that the backyards were jerry-built warrens constructed through the years by the overcrowded inhabitants. Federal and local health officials agreed that radical measures were needed to clean up the nuisances of Chinatown. It was decreed that "all structures placed in backyards, courts and space between buildings preventing the ingress of air and sunlight, should at once be knocked down and dragged out."

Dr. Gardner, now chairman of the State board of health, joined in the March 28 inspection on which the report was: "The places visited were so shockingly unsanitary that all agreed radical measures should at once be instituted."

On March 31, the *San Francisco Chronicle* started printing news of the demolition: "City Tears Down a Filthy Hovel—Chinese Rookery Back of St. Mary's Church Razed by Order of Works Body. . . . A corps of laborers for the Board of Public Works went in there yesterday with pickaxes, crowbars, and saws, and, beginning at the roof tore away everything flush with the brick walls down to the ground level, and then suspended operation to resume work today upon two subterranean strata."

In April, the California State board of health visited Chinatown and the Federal plague laboratory in a body, and, the *Journal* said, "passed a resolution endorsing all our joint efforts to make Chinatown habitable." By mid-October the *Chronicle* was reporting, "160 buildings in the Chinese quarter have been torn down, 70 houses have been vacated, and 400 plumbing repairs have been made in buildings."

Back in Washington, Surgeon General Wyman presided over the first annual conference of State health authorities with the Public Health and Marine Hospital Service held at the New Willard Hotel on June 3, 1903. It was addressed by Assistant Secretary of the Treasury Robert

Burns Armstrong, who later that year visited the plague laboratory in San Francisco and was shown through Chinatown by Dr. Blue. This conference voted confidence in the new cooperative efforts of local, State and national health authorities to eradicate plague in San Francisco.

Dr. Rupert Blue, aided by Dr. Currie, was now writing the San Francisco plague Journal. One entry in the year 1904 was the gravest possible warning that plague might run wild through ground squirrels. It said:

“June 18. Two boys died. Had been shooting squirrels in Contra Costa County, May 29, 30, 31. This marks the 3d or 4th death in the past year to be apparently associated with ground squirrel infection, and that the squirrels of Contra Costa County are already infected seem to be foregone conclusions. These animals infest the whole state, their burrows being a continuous chain from one end to the other. So it would seem a most serious matter indeed.”

That year in California, the joint city-state-federal conference on plague became The Public Health Commission of California, with Dr. Rupert Blue as president. Its announced object was the general supervision of sanitary regulations. The statement on this said, “The sanitation of Chinatown will of course engross the attention of the Commission until plague is eradicated.”

That day was officially proclaimed—too soon as it turned out—on February 16, 1905. The San Francisco Board of Health passed a resolution “thanking the U.S. Marine Hospital Service for its successful sanitary work in Chinatown” and commending the services of Dr. Blue. On March 1, the Chinatown force was reduced to two rat catchers and poison distributors and one inspector. On April 1, Dr. Blue received orders to take command at Norfolk, Virginia, and Dr. Currie took over to close out the plague campaign. He turned over the records to Dr. Hugh S. Cumming, in charge of the quarantine at Angel Island, who would one day become Surgeon General.

June 1905 brought the last yellow fever outbreak in the United States, at New Orleans. It was wiped out by the Public Health and Marine Hospital Service in a large-scale mosquito-killing campaign in which some forty medical officers took part. Dr. Joseph H. White was in charge, and gained so much acclaim for stamping yellow fever out in New Orleans, Louisiana, that he became a leading contender for the post of Surgeon General.

Plague again struck San Francisco in May of 1907 as the result of the great San Francisco earthquake of April 18, 1906, followed by fire. Rubbish, garbage, and human and animal wastes piled high. Rats multiplied and fattened in the filth, and passed their fleas on to the ground squirrels in the rural areas.

Surgeon Rupert Blue was sent back to San Francisco to take command.

His campaign against the plague that followed the earthquake was



so dramatic and successful that Surgeon General Wyman described it at the start of his November 30, 1909, annual report to Congress.

Surgeon General Wyman told Congress that from 1900 through 1904, there were 119 cases of plague and 113 deaths from it in San Francisco. From May 30, 1907, to June 30, 1908, only a little more than a year, there were 159 cases and 77 deaths.

Dr. Blue signed a huge chart, still to be seen at the National Library of Medicine, which listed the name, nativity, age, and sex of each of these plague patients, the date of diagnosis and the type of plague incurred, the date of death or recovery, and the probable source of infection, whether rat or ground squirrel. Most of the deaths listed for Contra Costa County came from ground squirrels which carried the disease on up to Seattle, Washington, where there were three verified cases late in 1907.

Surgeon Blue's final tally of rat destruction, as given to Congress included: 4,781,185 poisons placed; 146,809 rats trapped; 9,250 rats found dead, 93,558 rats examined bacteriologically. The clearing out of rat refuges, largely by the condemnation process, involved much property destruction by the owners. Listed as having been torn up were 103 yards; 969 basements, 770 passageways; 712 floors, and 108 entire houses.

Proudly Surgeon General Wyman told Congress that a banquet attended by some 300 citizens of California had been given in honor of Dr. Blue on March 31, 1909, to celebrate "the success attending the work of plague eradication." Dr. Blue was presented with a gold watch by the Mayor of San Francisco. This banquet was set up in a street of Chinatown, just to show how very clean Chinatown had become.

Said Dr. Wyman: "The campaign had illustrated what can be accomplished by harmonious cooperation between the national, state, and municipal authorities, backed up by patriotic public sentiment, such as had been exhibited in San Francisco."



## Chapter 11:

### TO FRONT RANKS IN MEDICAL RESEARCH

Surgeon General Walter Wyman

1891-1901

#### (Part Three)

In the last ten years that Dr. Walter Wyman served as Surgeon General, he made long strides toward his objective of a medical research system as good as any in Europe.

On March 3, 1901, he secured from Congress an appropriation of \$35,000 for a new building for the Hygienic Laboratory. The same legislation provided for a site of about five acres of the Naval Observatory grounds which were transferred to the Treasury Department.

"The location is a commanding one upon a hill just to the West of the White House and overlooking the Potomac River, and by reason of its altitude and quietude is admirably fitted for the work which the laboratory carries on," said Dr. Milton J. Rosenau, Director of the Hygienic Laboratory. "There is abundant room for stables and outdoor runs for the animals, and the absence of car lines or having heavy traffic in the immediate neighborhood makes the situation especially advantageous for microscopic and other work with instruments of precision on account of the freedom from vibration and tremor."

In September 1901, the Surgeon General set up a Division of Scientific Research which included the Hygienic Laboratory and a just-organized Yellow Fever Institute. Not one to surrender easily, he put in charge of this new Division Dr. Henry D. Geddings, protagonist of the deflated Sanarelli theory that *Bacillus icteroides* caused yellow fever.

Surgeon General Wyman had bacteriologists at the Hygienic Laboratory doing all sorts of experiments on the *Bacillus icteroides* as a factor not only in yellow fever, but also in many other diseases. He also dispatched a working party of Marine Hospital Service officers to Vera Cruz, Mexico, "to continue observations on the cause of yellow fever and the role played by the mosquito in the transmission of the disease."

The 1902 law which put the words *Public Health* into the title of the Service also increased the scope and prestige of the Hygienic Laboratory, gave it an Advisory Board, and furthered medical research in general.

The illustrious men initially appointed to the Advisory Board set up by that law for the Hygienic Laboratory served for many years, assuring top scientific standing to Federal research projects and their findings. The chairman was Professor William H. Welch, of Johns Hopkins University in Baltimore, Maryland, who learned his bacteriology from Dr. Robert





Courtesy National Library of Medicine, PHS

The North building of the Hygienic Laboratory, into which it moved, under Director Milton J. Rosenau, on March 18, 1904, to become the famed research center of the Public Health Service. A South building was later added and a central one filled in still later. Looking like a miniature college campus it still stands on a prominence sculptured by the superhighway along the Potomac River between Lincoln Memorial and the Kennedy Center for the Performing Arts. It is occupied by the Central Intelligence Agency.

Koch. Dr. Welch served as Chairman of the Advisory Board from 1902 until 1932. The other original members were: Professor Simon Flexner, University of Pennsylvania, who had headed the plague inquiry; Professor William T. Sedgwick, sanitary engineer, of the Massachusetts Institute of Technology; Professor Victor C. Vaughan, of the University of Ann Arbor, Michigan; and Professor Frank Westbrook, a native of Canada, who taught pathology and bacteriology at the University of Minnesota.

Dr. Charles Wardell Stiles took over the chair of zoology as soon as it was created in the Hygienic Laboratory by the law of 1902.

While studying medical zoology in Europe, Dr. Stiles acquired a special interest in hookworm disease. In research for the Department of Agriculture he announced a new hookworm species on May 10, 1902. His work had demonstrated beyond doubt that extensive areas in the Southern part of the United States were infested with this hookworm, and that large numbers in the population were severely diseased. The opening of



Courtesy National Library of Medicine, PHS

Dr. Charles Wardell Stiles, who took over the chair of zoology as soon as it was created in the Hygienic Laboratory by the law of 1902. He diagnosed the prevalence of hookworm disease in the South, and with the backing of Rockefeller money, started the campaign which conquered it. But he failed to establish that ticks caused Rocky Mountain spotted fever.

the new Zoology Division in the Hygienic Laboratory offered him opportunity to work on the human hookworm disease problem.

On September 24, 1902, he set forth on a series of extended field trips through the South, reported in a 122-page bulletin which aroused National interest. Titled: "Prevalence and Geographic Distribution of Hookworm Disease in the United States," this booklet said that it caused as much illness and economic loss as malaria.

As he was returning from one of his many field trips, he chanced to meet Walter Hines Page, noted diplomat and journalist, in the club car of a train. Dr. Stiles talked to Page about the human havoc being caused by hookworm disease in the South. Page then was devoting much of his time to encourage educational, agricultural, industrial, and sanitary improvements in the South. The next day in New York, Page was told of the desire of John D. Rockefeller to use some of his wealth to do some type of health work. Page suggested hookworm disease, with Dr. Stiles as field executive.

Rockefeller set aside \$1,000,000 to combat hookworm with the proviso that it must all be spent in five years by the State Health Departments of the 13 Southern States to whom it was allotted. Surgeon General Wyman refused to let Dr. Stiles leave the Service for that long. However, when another field director was chosen, Dr. Wyman permitted Dr. Stiles to serve as scientific director of the Rockefeller hookworm disease project. Thousands of persons were found to be infected and were given free treatment. One of the principal measures to control the disease was the sanitary disposal of human excreta. County meetings in schoolhouses and churches were the forerunner of the rural sanitation movement which resulted in the formation of county health departments.

The attention of Surgeon General Wyman was first called to spotted fever in the summer of 1902 by newspaper accounts of a new, strange, and highly dangerous disease in the Bitterroot Valley of Montana. On June 23, that year, he wired Surgeon Julius O. Cobb to proceed to Missoula, Montana, and investigate this disease. Dr. Cobb found two Minnesota scientists, Dr. Louis B. Wilson, then a pathologist to the Minnesota Board of Health, and Dr. William M. Chowning, pathologist of the University of Minnesota, already on the ground with the situation well analyzed. The conclusions of these two scientists were reported by Dr. Cobb to Surgeon General Wyman on July 1, 1902. The disease had then been known for 17 years among Montana doctors. Before that, by tradition, it went back to the earliest white settlers. It occurred only in spring months.

Said Dr. Cobb: "All clinical experience goes to show that the disease is not contagious or infectious. It is therefore, without doubt, an inoculable disease as an intra-corpuscular parasite has been found constantly present in the blood of each examined case this year. The organism resembles very closely Theobald Smith's Texas cattle fever organism, and it is



certainly reasonable to believe, from the knowledge at hand, that this disease is introduced in man the same way and in like manner as in the Texas cattle fever organism, viz., by the tick."

Of Wilson and Chowning, Dr. Cobb said:

"These gentlemen have gone so far in their experimental work as to be able to show that an entirely new disease has been encountered, and one never before described.

"Briefly and substantially, their investigations go to show that the disease is confined to the Bitterroot and Lolo valleys, covering an area of about 20 miles in width and 40 miles in length. Very queerly, too, they find that the disease is confined to one side of the valley, the west. So far I believe that no authenticated case has been contracted on the east side of the river."

Every scientist who has studied this disease since then has been struck with the peculiar geography of this 40-mile strip along the Bitterroot River. On the west side, the Bitterroot Mountains rise, rough and rugged. The Sapphire Mountains, rounded and weathered, range smoothly along the east side.

Dr. Cobb said that the two Minnesota pathologists "were astonished to learn that it was a common belief among the people of the valley that the disease in certain localities was caused by the bite of the tick."

"Clinically they found this idea correct, inasmuch as, positively, every patient gave history or showed evidence of being bitten by the tick," he stated.

Since many hundreds were bitten by ticks each year and only a few of them got fever, he added, the presumption was that its host was not the tick but some animal infected by ticks.

"If the infected animal was the horse, cow, deer, sheep, or other ranging animal then one would expect to find the disease gradually spread over a wide area from year to year," he said.

"Not to go further into the details of the matter, they found that the gopher (which in this section is the ground squirrel) was infected with ticks, and it is well known that this animal will not cross water except under extraordinary circumstances. This being true, it would give the necessary explanation why the disease was confined to such a small locality and why the limitations seemed to be so clearly defined."

When the 1902 law reorganizing the Service made it possible for States to call on the Hygienic Laboratory to help solve special disease problems, Dr. Thomas Tuttle, secretary of the Board of Health of the State of Montana, asked the Surgeon General to send a scientist to work on the 1903 spotted fever season. The Surgeon General sent the Laboratory's new assistant director, Dr. John F. Anderson. On his return to Washington in July, Dr. Anderson published a 50-page pamphlet on his Montana findings. Titled "Spotted Fever (Tick Fever) of the Rocky Mountains—A New Disease" this pamphlet corroborated the Wilson-



Courtesy Rocky Mountain Laboratory, Hamilton, Montana

The Bitterroot Mountains of Montana where ticks abound on cattle, gophers, man, and in the grass. The man in the foreground is "tick-dragging" for intensive studies in the Rocky Mountain Laboratory at Hamilton. The low and smooth Sapphire Mountains across the Bitterroot River are not tick-infested.

Chowning findings. Indeed, it carried the 114 cases they had compiled along with the five cases compiled by Anderson himself.

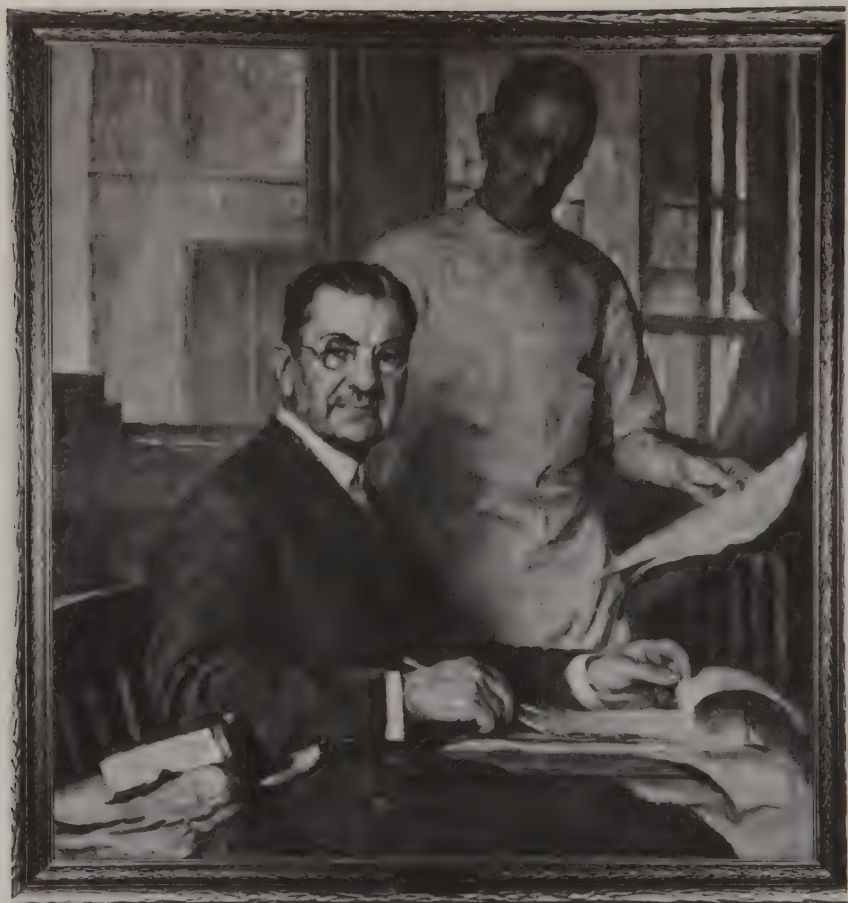
Dr. Anderson listed four States in addition to Montana where the fever had been found and said it was "more widely-disseminated and dangerous than had been thought."



Courtesy Rocky Mountain Laboratory, Hamilton, Montana

The wood tick *Dermacentor andersoni*, male left, female right, wait on vegetation for a host, typically as the female is head down and holding on with the third pair of legs. The scientific name of this tick was derived from that of Dr. John F. Anderson, who as Assistant Director of the Hygienic Laboratory went to Montana to study the tick situation and on his return published a 50-page pamphlet *Spotted Fever (Tick Fever) of the Rocky Mountains—A New Disease*.





Courtesy National Library of Medicine, PHS

Dr. John F. Anderson, Director of the Hygienic Laboratory from 1909 to 1916, who did some of the early work on Rocky Mountain spotted fever. With him is Dr. George F. Leonard, a laboratory assistant.

"I have suggested as the name for the disease 'Tick Fever' as there are already two diseases called spotted fever," he said. He explained that "it was always found that there was a history of tick bites about one week before the onset."

The last paragraph of Dr. Anderson's dissertation closed with these words: "If, as seems very probable and almost proved, the tick is the means by which the disease is spread, the question of the prevention of the disease resolves itself into the destruction of the ticks. This may be done either in the early fall or preferably in the early spring, when the ticks are just beginning to move about."

Dr. Anderson said that he had brought back to the Hygienic Labora-

tory in Washington 24 ticks of different species and had turned them over to Dr. Charles Wardell Stiles, Zoologist of the Laboratory, for determination.

The next year, on May 2, 1904, Dr. Stiles was sent to Montana to make his own observations on tick fever. In April 1905, he published his ponderous report titled: "A Zoological Investigation into the Cause, Transmission, and Sources of Rocky Mountain 'Spotted Fever.'" He said that this report "consists chiefly of negative findings." He had not been able to find any parasites either in the fever victims or in the ticks. He cast doubt on the theory that the disease was caused by ticks. In a preliminary statement in the 1904 annual report, on which a special mailing was made to Montana, he said:

"The tick theory has caused serious financial loss to the Bitterroot Valley and has produced an effect which in a few cases bordered on hysteria. In justice to property interests of the valley and the peace of mind of the inhabitants, I think no time should be lost in publishing the statement that the results of the study this year have absolutely and totally failed to confirm this hypothesis."

The impression given was that it was not caused by ticks. His report prompted another scientist, Dr. Howard Taylor Ricketts, to prove, by carefully controlled experiments, that Rocky Mountain spotted fever was indeed caused by the bite of an infected tick. To Dr. Chowning, whose findings were thus flouted, Dr. Ricketts wrote: "I have read Stiles on Rocky Mountain Spotted Fever and it gave me the idea of going to Montana to study spotted fever."

By June 29, 1906, he was writing Dr. Tuttle, of the Montana Board of Health, that as between the conflicting theories that the disease came from the water supply or the bite of the wood tick, "I may say that the bite of the tick was present in every case, or in almost every case, with a constancy which is ominous." He added: "I am at present conducting experiments which are intended to show the ability, or inability of the wood tick, to transmit the disease."

Although he was not quite ready to announce it publicly until he had made more controlled experiments, Dr. Ricketts, in 1906, had proven that Rocky Mountain spotted fever was transmitted by the tick. In his own words: "A female tick which had fed for about two days on a sick guinea pig transmitted spotted fever to a healthy guinea pig when allowed to bite the latter . . . A little later I obtained successful transmission with a male tick in the same manner; and repeated the transmission with a female tick a number of times."

On April 16, 1907, Dr. Ricketts wrote his former professor, Dr. Haktoen, describing in detail the tent laboratory he had just set up on the grounds of the Missoula hospital for another season's work.

A second year of success cleared all doubts as to the tick theory. Dr. Ricketts gave his name to the tiny disease-causing parasites planted in

the human blood by biting insects—*Rickettsia*. They are small, non-filterable forms that permeate cells and cause various diseases, most of which are manifested by a typhus-like rash. Among the carriers are ticks, lice, mites, and fleas. Ricketts died of typhus, which he had been studying in Mexico City, on May 3, 1910. Doctors Anderson and Goldberger, of the Hygienic Laboratory, had visited him in Mexico City.

In 1903, Director Milton J. Rosenau, of the Hygienic Laboratory, formed the Journal Club which met one night a week at his home. The Laboratory was then receiving about forty publications, half of them foreign.

"In order to have the benefit of this large amount of literature and to keep pace with the progress of scientific research in different countries, the director assigned a certain number of journals to each officer on duty in the laboratory," he explained.

Many researches were started as a result of the meetings of the Journal Club.

An important phase of the work of the Hygienic Laboratory was its training course for medical officers of the Service. By 1904, this was being described as "a complete course of instruction in the sanitary sciences." Said the annual report of that year: "Beginning with a review of histology, pathology, and bacteriology as fundamental branches, the course takes up the practical subjects of infectious diseases, their causes and methods of control, quarantine, principles and practice of disinfection, and sanitary problems connected with pure water, ventilation, and impurities in the air, vital statistics, sanitary laws and regulations, and similar problems affecting the public health." Class rosters contained many names of future brilliant scientists.

The new Hygienic Laboratory on the quiet hill overlooking the Potomac River opened March 16, 1904. Into the log of the Laboratory on that day went the longest entry in the entire time span covered in that book, from May 13, 1901, to June 18, 1923.

It began: "The new laboratory was officially taken charge of today—flag raised—muster of all officers and men and the Director gave instructions of which the following is a synopsis."

There followed four pages of closely-written rules laid down by Dr. Milton J. Rosenau for the tidy conduct of the new temple of science.

Director Rosenau counselled: "We want to stand as friends and good neighbors to the Navy. The use of their grounds is a privilege. Nothing is to be done to irritate or aggravate them. Always salute a Navy officer. Do not trespass upon their grounds needlessly."

Dr. Rosenau was explicit indeed in his many admonitions as to how the new building should be protected and maintained. For example:

"The only matches allowed to be used are the safety matches provided by the Government . . . Extinguish every match before throwing it away—*be sure it is out.*"



The scientists and their staffs were sternly reminded by Rosenau that the bills for the laboratory would "run about \$4,000.00 a month, or \$50,000.00 a year."

"From which it is evident that we must keep down expenses and exercise economy wherever possible," he said.

He considered the treatment of animals in a laboratory so important that he made it one of the principal subjects of his discourse.

"Be kind to animals," he said. "Teasing or molesting or in any way annoying animals will not be tolerated under any circumstances. Animals are to be used in the proper work of the laboratory, but anything which inflicts pain upon them will not under any circumstances be allowed."

Dr. Rosenau decreed an inspection every Saturday morning. He flatly stated, "Visitors will not be encouraged" but added that those who came would be seated "and the person for whom they ask will be summoned." He reminded that there was personal danger in the work at the laboratory. "We have had no accidents yet and want none," he added.

His final exhortation was under the subject: "Work."

"Everybody is expected to do intelligent and faithful work," he said. "The cooperation of all is needed, from the highest to the lowest, as each is dependent on the other.

"If anything goes wrong, everyone is to feel at perfect liberty to tell the Director, who will endeavor to properly administer justice."

With that, the wheels of the Hygienic Laboratory went on grinding.

To make the wheels grind more smoothly, Dr. Wyman in 1905 installed Dr. John W. Kerr as Assistant Surgeon General in charge of the Division of Scientific Research and Sanitation which included the Hygienic Laboratory. Dr. Wyman had called Dr. Kerr back to this country from Hong Kong on September 20, 1902. On his arrival in this country, he brought him immediately into Washington for more than a week of conferences. He then ordered Kerr to make a quarantine inspection on the Mexican border from which he brought him back to tell him of his future job at headquarters.

Dr. John W. Kerr, as Assistant Surgeon General for Scientific Research, and Dr. Milton J. Rosenau, as Director of the Hygienic Laboratory, worked together for many years as an exceptionally effective team. These two laid the secure foundation on which has been built the billion-dollar-a-year research organization of the Public Health Service, the National Institutes of Health.

The frequent conferences between Dr. Rosenau and Dr. Kerr became a game of wits. In later years, Dr. Kerr told a close associate that Dr. Rosenau usually would come to him with four, five, or more items for discussion. Soon Dr. Kerr came to realize that there was always one of these items that Dr. Rosenau felt was of especial importance and on which he wished to secure a decision which conformed to his own view-

point. The game of wits, as Dr. Kerr saw it, was to determine which matter was the vital one to Dr. Rosenau at the moment. Dr. Kerr said that he usually detected the vital item before the conference was half over. And usually a way was found to do it.

The work in the spread-out red brick laboratory was intensive and varied. The testing of serums, vaccines, and antitoxins was an important function. Director Milton J. Rosenau and Assistant Director John F. Anderson spent many hours inspecting the biological manufacturing laboratories.

The Pharmacology Division was continuously revising the *United States Pharmacopoeia*.

Dr. Stiles, in charge of the Zoology Division, also made a specialty of scientific nomenclature, working unceasingly to bring American designations of parasites and of diseases in line with those used by the scientists of Europe. Dr. William Osler, of Johns Hopkins University, Baltimore, Maryland, paid him this tribute: "I am under special indebtedness to Dr. Stiles, the leading authority on parasites in this country, for a careful revision of the nomenclature in accordance with the rules of the International Committee, and for valuable advice relating to the subject."

In the year 1906, a special project brought Dr. Kinyoun back as an advisor to the Hygienic Laboratory. The Laboratory at that time started to develop a standard unit for measuring the strength of tetanus antitoxin. In this work, the Laboratory had the cooperation of a committee from the Society of American Bacteriologists consisting of: Dr. Theobald Smith, professor of comparative pathology, Harvard University, Boston, Massachusetts,—the man who discovered that the tick was the carrier of Texas fever in cattle; Dr. Joseph J. Kinyoun, at that time director of biological laboratories of the H. K. Mulford Company, Glendolen, Pennsylvania; Dr. E. M. Houghton, director of biological laboratories, Parke-Davis and Company, Detroit, Michigan; Dr. Joseph McFarland, professor of pathology and bacteriology, Medico-Chirurgical College, Philadelphia, Pennsylvania; Dr. William H. Park, director of the research laboratory, New York City Department of Health; and Dr. Herbert D. Pease, director of the antitoxin laboratory, New York State Department of Health.

Slowly, Surgeon General Wyman introduced into the Service the women nurses being trained by many hospitals in the Florence Nightingale tradition and by her methods. All the nurses, or more properly attendants, in the early days of the Marine Hospital Service, were men. They usually were untrained, unskilled seamen who, because of age or infirmity, could no longer go to sea. Female nurses were first used in the early 1890's in the care of immigrants at the Ellis Island hospital. They worked so well that by 1910 they had been introduced into all the Service hospitals.

The Surgeon General had evolved a highly effective pattern for

the handling of both communicable diseases which threatened public health and chronic diseases which caused the hospitalization of many merchant seamen. He put medical officers, all of them ready for transfer on twenty-four hours notice, in charge of hospitals, quarantine stations—and, when an epidemic struck—quarantine detention camps.

Always drugs had to be given. Since pharmacists presumably were trained also to conduct a drug business, the Service employed them not only to prepare and disburse medicines, but also to handle many of the administrative duties. On Ship Island Quarantine Station, for instance, the pharmacist would be expected to make out the routine reports of inspections which had to be sent in to the Washington, D.C., headquarters. Dr. Henry R. Carter had been swamped by detail when without a pharmacist there. When the Service found it necessary to set up detention or refuge camps at State lines, a pharmacist was assigned to keep the records and handle other administrative details.

Surgeon General Wyman made a determined attack on leprosy. The first Nationwide study of its prevalence was conducted entirely by the Marine Hospital Service and completed on November 30, 1901. Through a questionnaire sent to 2,819 counties, of which 2,530 replied, a total of 278 known cases of leprosy were tallied. Only 72 of them were isolated.

Three highly competent Marine Hospital Service medical officers on the Leprosy Commission, Surgeons Joseph H. White, George T. Vaughan, and Milton J. Rosenau, made their 119-page report as comprehensive as was then possible. They frankly stated that the count would not be complete.

“On account of the loathsome nature of the disease, which has clung to it from antiquity, there is an inclination on the part of the patient himself, as well as upon the part of his family and friends, to conceal the affliction from the public,” the report said.

A high incidence of leprosy was noted among immigrants to Minnesota from Sweden and Norway. Dr. Gerhard A. Hansen, of Norway, who had discovered the *Bacillus Lepare* twenty-five years previously—giving the old malady the new name of Hansen’s disease—was quoted as urging legal isolation as the best means of keeping the disease from spreading. Dr. Hansen had visited Minnesota and had reported on 120 cases of leprosy there.

Louisiana for six years had maintained a leprosarium in Iberville Parish, at Carville, and had on its statute books a law requiring the commitment of lepers there. The law was by no means fully enforced. By 1901 the inmates totalled about forty, of which ten had been legally sent there, and the rest had been persuaded to enter voluntarily.

The instructions “to make a complete report on leprosy in the Hawaiian Islands” which Surgeon General Wyman had given Surgeon D. A. Carmichael when he sent him there in 1898 resulted in two elaborate reports. Surgeon Carmichael described how this disease, imported



into Hawaii, had spread through the islands, crippling and killing the susceptible Polynesians. He told of the law, dating back to 1866, which decreed that incurable cases must be segregated on a particularly isolated small peninsula of the island of Molokai. His successor, Surgeon Leland E. Cofer, described the colony, scenically beautiful, which had grown up on a spit of land jutting out into the sea below the high, steep cliffs of Molokai.

President Theodore Roosevelt, in his message to Congress on November 4, 1904, recommended a hospital and laboratory in the Hawaiian Islands for the study of leprosy. Congress, on March 3, 1905, passed a law appropriating \$100,000 for construction of this plant; and \$50,000 for its maintenance during the first year.

The Hawaiian legislature agreed to give the United States Government one square mile of its reservation for leprosy on Molokai for the construction of the Federal sanitarium. Surgeon General Wyman in June 1905, went to Hawaii to choose the site. As on-the-spot daily account of his visit there is contained in a handwritten quarantine station log,



Courtesy State Department of Health, Honolulu, Hawaii

Surgeon General Walter Wyman visited these two historic churches when he went to Hawaii in June 1905 to select a site for a United States hospital and laboratory for the study of leprosy. The church in the foreground is Siloma, built as a Congregational New England mission and still Protestant. The square tower against the high cliffs in background is the St. Philomena Catholic church. The first portion was built by Brothers in Honolulu then taken apart and shipped to Molokai. It was rebuilt by Father Damien in 1873.

"The Honolulu Medical Officer's Journal from June 14, 1900 to June 30, 1910."

This journal shows that Surgeon General Wyman arrived in Honolulu June 7, 1905, took up headquarters at the Alexander Young Hotel, and called on Governor Carter. The next day arrangements were made for the Wilder Company's steamer *Likelike* to take his party to Molokai Friday night June 9, and return to Honolulu on Sunday, June 11.

Said this journal: "This trip is the official beginning of the scientific study of leprosy by the United States, through Surgeon General Wyman and his corps, the U.S. Public Health and Marine Hospital Service. It marks a new era in the medical history of leprosy, and will become a part of the important history of the United States."

After an elaborate ceremony of inspection of the Channel Wharf and of Quarantine Island by the Surgeon General, the *Likelike* sailed with his party which included: Representative W. P. Hepburn, of Iowa, his personal guest who had come with him from Washington, D.C.; the Governor of Hawaii; Dr. Leland E. Cofer; the Honorable W. O. Smith, of Honolulu; and President R. E. Pinkham of the Hawaiian Board of Health.

"Four surveyors were attached to the party for the purpose of locating the property selected and preparing the charts necessary for its transfer," the journal said.

The leprosy patients got out their brass band to greet the arrival of the Surgeon General at the early hour of 7:30 a.m. Saturday, June 10.

Then Dr. Wyman went over this tongue-like tract of land two and three-fourths miles wide at the base of cliffs from 1,800 to 2,000 feet high and jutting out into the ocean for about a mile. Its area of about eight square miles was rimmed by a rocky coastline. On its western shore close to the cliff lay the pretty little town of Kalaupapa, with white cottages and churches surrounded by stone or lava fences. The yards were planted with tropical fruits and flowers. On the eastern shore close to the cliff was the village of Kalawao, exposed to the full force of the usually prevailing trade winds, but having a wild, weird beauty of its own.

Dr. Wyman got right down to the business at hand—selecting a site.

After the map had been examined, the party went for "a preliminary general inspection" of three proposed sites. Surgeon General Wyman picked the third site visited, at Kalawao, close to the foot of the cliffs, where high crags had slipped off and cropped up into the nearby sea. A full description of this site in the journal included the fact that it was "to the east of the Baldwin Home and the Romanish Church but removed about fifty feet more or less from these places."

The church thus referred to was that of Father Damien, on the darkling side of the peninsula to which the victims of leprosy had first been banished in 1866. Many accounts picture them as then utterly



Courtesy State Department of Health, Honolulu, Hawaii

At the edge of the seashore, Kalawao, Molokai, stood the United States laboratory for the study of leprosy created by Surgeon General Wyman in the Theodore Roosevelt administration. Only the piles which supported its foundation are there now. It was on an absolutely isolated spit of land, cut off from the plateau above by cliffs so high it takes an hour to go up on horseback. Water pressure from the plateau above made it possible for this laboratory to have the first flush toilet in Hawaii, also an electric light plant and an ice-making machine. The hospital had individual rooms for forty patients, but only nine were ever treated there.

abandoned and bereft. But two charming churches stand there today, so close together that both are pictured on the same postcard, as silent testimony that the outcasts had the spirit to build for the future.

One is a little Protestant church of New England architecture, Siloama, "Church of the Healing Spring" built in 1871. Nothing could be more picturesque with sea in front, high cliffs behind, bulky Hawaiian tombs in the flowered churchyard. An inscription to the founders inside the church reads in part: "Thrust out by mankind these twelve women and thirty-three men crying aloud to God their only refuge formed a church the first in the desolation that was Kalawao." The plaque gave the names of fifteen pastors from 1866 to 1930.

Down the road a short distance is the sturdy Catholic church to which the famed Father Damien added a wing in 1873 when he came from Belgium to Molokai. He died, and was buried there in 1888, of



leprosy which he had contracted four years earlier in ministering to the patients in the colony. Later his body was removed to his native Belgium from this lovely, secluded spot.

At the time of Surgeon General Wyman's visit, the body of Father Damien was still in his churchyard tomb, and Brother Joseph Dutton, who had cared for him as he lay dying, still had charge of the nearby Baldwin Home for boys who were patients.

After the luncheon which followed the selection of the site, the journal said, the maps were again examined and two of the sites revisited with no change in decision.

"Surgeon General Wyman personally covered the ground (stepped off the boundary lines) of the selected site and gave some consideration to the location of the various groups of buildings," the journal continued under the June 10, 1905, date.

"In the course of the day the Baldwin Home for leper boys, and the Bishop Home for leper girls were visited."

The home for the boys was in Kalawao; for the girls in Kalaupapa.

At the home for girls with leprosy, the Surgeon General saw at close hand the self-sacrificing devotion of the Catholic nuns brought to a convent on Molokai by Mother Marianne in 1888. This convent has since been kept supplied with Sisters of Charity from the headquarters of the order in Syracuse, New York.

"Surgeon General Wyman and party all mountain climbed to the summit of the extinct volcano Kauhako," the old log continued. "From this point, the whole peninsula was viewed and the relation of the selected site to the surrounding country noted.

"After a day of much activity and thoughtful work, the party boarded the *Likeli* at 5:30 p.m. and returned to Honolulu, arriving at 10:20 p.m.

Dr. Walter R. Brinckerhoff, of Harvard University, was named director of the leprosy investigation station to be constructed at Kalawao. In March of 1906 he went to Hawaii, stopping at the Marine Hospital in San Francisco for long consultations with Frank Leighton Gibson, the Service pharmacist who would take charge of the building and equipment, as administrative officer. The San Francisco earthquake, in April, held Gibson at his post there for some months of damage repair, while Dr. Brinckerhoff, living in Honolulu, struggled with the logistics problems of Molokai.

Pharmacist Gibson and his young wife then joined Dr. Brinckerhoff, and together they engaged in efforts, at last spectacularly successful, to make this the most modern laboratory in existence.

Before the station was ready for occupancy, Dr. Brinckerhoff met and married a Honolulu visitor from New England, Miss Nellie White. They never moved into the house built for Dr. Brinckerhoff on Molokai. When their son was born, Nellie died. Dr. Brinckerhoff was a desolate and

beaten man. He continued to work on leprosy in Honolulu until April 15, 1910, when he resigned from the Service, and moved to New York where he soon died.

Dr. Donald H. Currie, who had been for two years on special duty in Honolulu, was assigned on May 31, 1909, as Director of the Molokai Leprosy Investigation Station. The big new station still was not ready for occupancy, and Dr. Currie continued the studies on the incipient cases being treated at the Kalihi receiving station near Honolulu on the Island of Oahu. In August 1909, he attended as delegate from this country, the Second International Conference against Leprosy at Bergen, Norway, where Dr. Gerhard A. Hansen conducted his experiments. Dr. Currie went to Bergen several days early in order to visit Dr. Hansen and the leprosy hospitals of Bergen. He delivered several scientific papers on leprosy work in Hawaii at the conference.

In the meantime Pharmacist and Mrs. Gibson moved into their newly-built private home, on Molokai, on July 6, 1909, and were in complete charge of the empty affluence of the U.S. Leprosy Investigation Station at Kalawao.

Fed from the watershed of upper Molokai beyond them, the high cliffs above furnished an ample supply of water under gravity pressure. The laboratory boasted the first flush toilets in the Hawaiian Islands; and also an elaborate electric system which turned out artificial ice.

The Station was divided into three compounds, Residence, Executive, and Hospital. The Residence section included individual homes for the staff. The Administrative compound had office space and laboratories, storehouses, ice houses, barns, and accommodations for the animals to be used in experiments. The hospital had individual rooms for forty patients.

In her book, *Under the Cliffs of Molokai*, Emma Warren Gibson said: "Every stick of lumber and bit of equipment had to be either floated ashore or loaded into small boats from the deck of the *Mikahala* or *Ewilani*, the inter-island steamers. It was *some* enterprise to buy and check every piece of equipment, from heavy block and tackle to handling the heavy pieces of machinery for the ice machine and electric dynamo, down through lists of linen, dishes, mules, garden seeds and all the delicate laboratory equipment. The U.S. Leprosy Investigation Station at Kalawao had one of the most complete laboratory outfits in the world."

Again, Mrs. Gibson said: "Uncle Sam furnished us with the best of everything: fine linen, good furniture, Haviland dishes, silver, electric lights, ice, our own water system and even a Jersey dairy cow and a flock of chickens. The thirty-two Chinese were detailed to help us at first, but by and by we did not need so many . . . Everything had been thought of. The floor of our house was painted black, like a piano top, so to soften the glare of the reflection from the ocean . . . We were very comfortable indeed; the upstairs lanai was furnished with hammocks,

chairs and couches; French doors opened from each room into a lanai; electric fans were supplied but seldom used because of the fresh breezes wafting from the ocean . . . Indeed, we felt like Adam and Eve in Paradise with all the conveniences of civilization, besides a private post office."

Many times she told of the unparalleled beauty of Kalawao, on the moody side of the Molokai colony.

"The steep cliffs had waterfalls which never reached the ocean, being caught up and blown back by sea winds, with the result that we had perpetual rainbows all the way down the coast; a beauty unbelievable, unless one actually saw it, iridescent rainbows conceived by the breezes from the falls," she said.

"Lunar rainbows were not uncommon, contributing their eerie and lovely spell upon this small peninsula, where 'mauka' (toward the mountains) meant almost straight above us, almost straight up those sheer cliffs, and 'makai' (toward the sea) was at our feet, almost straight down. Twilight came early to Kalawao."

However, only nine of the hundreds of persons on Molokai with leprosy had volunteered as hospital patients when the station was formally opened by Dr. Currie on December 23, 1909. No others ever came. Mrs. Gibson explained what happened to the nine in this way:

"Unused as they were to the restrictions of hospital life, they had little liking for it and proved uncooperative. They rebelled against the rigor of the treatments and the confinement of living within the grounds after the unlimited freedom offered by the Settlement. . . . One by one the volunteer patients left, not caring to take the treatments and preferring a freer life in Kalaupapa. When the last one departed, the authorities in Washington decided to close the station.

"After all the expense and trouble of building and equipping these buildings, it was a sad blow that human nature, as shown in the happy-go-lucky Hawaiians, could make or break a humane project."

On October 23, 1911, Dr. George W. McCoy took over as Director of the Leprosy Investigation Station on Molokai from Dr. Currie. It was Dr. McCoy who closed the Station.

Eventually all of the timbers and other materials so laboriously brought ashore and assembled followed the nine leprosy patients across the base of the peninsula to Kalaupapa and were transformed into modest homes for members of the colony. The naked concrete piles upon which the buildings of the Investigation Station once rested, alone stand as a memorial to a worthy but unproductive project.

Dr. John W. Kerr early saw the need for field studies, such as John D. Rockefeller had supplied for the fight against hookworm disease in the South. Someone had the bright idea of using "PSED funds" for



such studies. Theodore Roosevelt was a president who gladly signed for funds for preventing the spread of epidemic diseases. So it was that Surgeon R. H. Von Ezdorf was assigned to conduct studies of malaria from the Marine Hospital in Mobile, Alabama. Surgeon Claude H. Lavinder was studying pellagra, which first attracted public attention in 1907, using the Marine Hospital in Savannah, Georgia, as his base.

Dr. Wyman was now old, and he had diabetes. Sometimes he dozed at his desk. But it seemed to many of his medical officers that he never lost his zest for ordering them on sudden moves around the globe whenever and wherever disease threatened. One of them made the dour remark: "He found out where you didn't want to go—and then sent you there." As one example, Dr. Richard H. Creel was sent to eight widely-dispersed stations in the eight years between 1902 and 1910.

Dr. Samuel B. Grubbs had taken a year off duty, without salary, to specialize in eye, ear, nose and throat therapy in Vienna, Austria.

"I had saved a month, half for a tramp in the Tyrol and the rest for Paris," he said. "There, however, I received an order from the Surgeon General suspending my leave and ordering me to represent the United States in organizing the Office International d' Hygiene Publique and then go to Libau and other places in Russia."

Dr. Grubbs said this order came just thirty hours before the first official luncheon, an affair requiring a frock coat and striped trousers. He sat up until three o'clock in the morning for fittings with three tailors who worked all night.

"I was rewarded for my trouble," he noted. "I ate delicacies from priceless Sevres china, usually reserved for presidential functions. The room was white and gold crystal, and the meal was served with all the pomp of a royal function."

Thus the United States was represented in the week-long 1908 meeting which was the final step in the setting up of a twelve-nation office in Paris to report the prevalence of the major communicable diseases.

There were many examples of Dr. Wyman's fatherly interest in the bright young men under him. Edgar Farrar, a corporation lawyer of New Orleans, wrote Dr. Wyman to find out if Dr. Joseph Goldberger, of the Hygienic Laboratory, was worthy to marry his daughter Mary. Promptly Walter Wyman, Surgeon General, replied under date of December 30, 1905:

"In reply to your letter of December 26, I take pleasure in saying that in all the time Dr. Goldberger has been connected with the Service, he has commended himself very highly, both to those under whom he has immediately served and to the Bureau.

"He is considered one of the most promising of the young men connected with the Hygienic Laboratory of the Service. In a number of situations in epidemic duty which have called for great tact and firmness, he has displayed both.



Courtesy National Library of Medicine, PHS

Dr. Joseph Goldberger, the scientist who proved pellagra to be a nutritional disease. He was recommended to his future father-in-law by the bachelor Surgeon General, Dr. Walter Wyman.



Courtesy Dr. Edgar W. Norris, San Francisco, California

The United States Quarantine Station at Angel Island in San Francisco Harbor as it looked in the early 1900's when the Service was fighting bubonic plague there. Angel Island is now a State Park with several buildings of the Quarantine Station preserved for Park administration.



Courtesy Dr. Edgar W. Norris, San Francisco, California

The *U. S. S. Omaha*, obtained by the Public Health Service from the Navy and converted for use by first-class passengers as detention quarters during quarantine. It is alongside the Angel Island Quarantine Station in 1908.



"I have never heard the slightest unfavorable opinion as to his character. On the contrary, in general reputation both personal and professional, he stands high."

Dr. Goldberger married Mary Farrar, a happy union. One of their sons is a physician now in practice in El Reno, Oklahoma.

The term of Theodore Roosevelt ended, and William Howard Taft entered the White House. A strong movement was on to start a Federal Children's Bureau. It had the blessing of President Theodore Roosevelt, and would be established in 1912 under President Taft.

The first plan was to set it up under the direction of the Public Health Service. Dr. Wilson G. Smillie, in his book, *Public Health: Its Promise for the Future*, said that Dr. Rosenau had told him of the visit of the sponsors to Surgeon General Wyman.

Wrote Dr. Smillie: "He was a bachelor of long standing and regarded his staff as his personal family. He was also a gruff, grumpy Marine Hospital officer whose major concern was with the police powers of port quarantine and with the surgical treatment of sailors. At this famous interview, he was most emphatic in his refusal to complicate his life with the importunities of a group of sentimental women who were interested solely in the welfare of mothers and infants."

The Children's Bureau became an agency of the Department of Labor since it was delegated to administer child labor laws as well as to sponsor child health.

Dr. Wyman had no surcease from the drive to set up a Department of Health in the Federal Government. In the Taft administration, this campaign was waged very actively by the Committee of One Hundred on National Health. Dr. Irving Fisher, of Yale University, New Haven, Connecticut, was President, and Miss Jane Addams, of Hull House, Chicago, Illinois, was one of the ten Vice-Presidents. This Committee distributed more than a million pieces of mail in its effort to get a chair in the President's cabinet for Health.

Dr. Wyman died at age 63 in a diabetic coma on November 21, 1911.



## Chapter 12:

### THE PUBLIC HEALTH SERVICE AT LAST— IT LAUNCHES FIELD STUDIES

Surgeon General Rupert Blue  
1912-1920

#### (Part One)

Thirteen days after Dr. Walter Wyman died, Franklin MacVeagh, Secretary of the Treasury under President William Howard Taft, had to make an annual report when there was no Surgeon General in the field of public health.

He used that opportunity on December 4, 1911, to appeal to Congress for reforms which Dr. Wyman and other Surgeons General had urged, and particularly to have the title signify simply the main aim of the Service. Secretary MacVeagh titled this section of his report, "The Public Health Service" as indication that was what, and that was all that he wanted it called.

Secretary MacVeagh noted that the Public Health Service had recently been hampered by "an effort to erect a health department with a new member of the Cabinet at its head."

"I think the time has come when we should sufficiently concentrate attention upon the public health work already in hand to develop it to the utmost," he added.

"The unexpected death of Surgeon General Wyman brings this service into special notice; and no better recognition of this man, who did so much to build the service up and who was so eager to carry it forward, could be made than to promote and expand its usefulness. And when the new Surgeon General, who must soon be appointed, shall enter upon his duties, I shall have the honor to make, with his approval, some recommendations for the advancement of this important governmental work."

Many in the Service expected the seasoned and able Dr. Joseph H. White to be chosen Surgeon General. But the wave of the future of the Public Health Service had started running in San Francisco Bay. That was the area where Surgeon Rupert Blue, with the aid of his executive officer, Dr. William Colby Rucker, and laboratory specialist George W. McCoy, had finally vanquished urban bubonic plague, spread by rats; and had routed its successor, sylvatic bubonic plague, spread by ground squirrels. Working with a new Governor of California who was himself a physician, Dr. Rupert Blue had accomplished this in an atmosphere of good will—and with nationwide publicity. Moreover, his campaign against bubonic





Courtesy National Library of Medicine, PHS

Surgeon General Rupert Blue, the only Surgeon General of the Public Health Service who ever served simultaneously, for one year, as President of the American Medical Association. As President, he recommended to the AMA a governmental health insurance system for this country.

plague had brought national acceptance of the supremacy of the Federal Government when a major health disaster threatens.

Dr. Rupert Blue had gone on to Honolulu as health advisor to the Governor and the Board of Health and as commander of the Federal war there on the yellow fever mosquito. The Panama Canal, about to open, would bring new prestige to the port of Honolulu. The Federal Government was determined that it should be mosquito free. Dr. McCoy remained in San Francisco. The dynamic Dr. W. Colby Rucker had been called back to Washington where he was busily promoting Dr. Rupert Blue for the position of Surgeon General.

And so it was that President Taft, on the advice of Secretary of the Treasury MacVeagh, reached clear across the continent and beyond to Hawaii to appoint the next Surgeon General—Dr. Rupert Blue. Dr. McCoy was sent from San Francisco to take his place in Hawaii.

Dr. Blue was appointed Surgeon General of the Public Health and Marine Hospital Service on January 13, 1912. A few weeks later he assigned Dr. Rucker, as an Assistant Surgeon General.

The monthly "Medical Times" in New York pointed out that Dr. Blue "was promoted over the heads of many older men to succeed the lamented and greatly admired Walter Wyman as Surgeon General."

This periodical added: "President Taft, recognizing the fact that the important public health service must be directed by the wisest and sanest and most skillful man in the corps, forgot the bugbear of precedence and nominated the best man."

Dr. Rupert Blue was a strong and silent man who had the habit of twirling the ends of his pointed mustache while he talked. His blue eyes often had a twinkle in them. He was tall and had the strong shoulders of the amateur boxer. How far he had gone with boxing as a hobby is shown by the fact that he boxed with James A. Corbett in San Francisco.

Dr. Blue came from a Southern family of social standing which had carried forward the tradition of training its sons for careers.

His brother, Rear Admiral Victor Blue, was considered an outstanding officer in the Navy. In his early manhood, Rupert Blue had been married to an actress, but that was so far behind him as to be almost forgotten. He was forty-six years old when he became Surgeon General.

He was born in Richmond County, North Carolina, on May 30, 1867. His parents soon moved to Marion, South Carolina, where he grew up. He attended college at the University of Virginia; and at the University of Maryland where he received his M.D. degree in 1892.

That same year he entered the Marine Hospital Service and gradually worked his way up through the many assignments meted out to all medical officers by Surgeon General Wyman. At one time, Dr. Blue had charge of a wing of the Good Samaritan Hospital in Cincinnati where merchant seamen were given medical care. In Baltimore, he supervised oystermen in connection with sanitary measures to protect oysters in



Courtesy National Library of Medicine, PHS

Assistant Surgeon General W. Colby Rucker, strong supporter of Dr. Rupert Blue both in San Francisco and in Washington, D.C.





Courtesy Public Health Service

Dr. George W. McCoy, who was brought to Washington as Director of the Hygienic Laboratory by Surgeon General Rupert Blue who had worked with him in San Francisco and Hawaii on plague and leprosy.

coastal areas. He took on various duties at Baltimore, Md.; Charleston, S.C.; Portland, Ore.; Milwaukee, New York, and Norfolk. In 1900, he was sent by President McKinley to Genoa, Italy, where public health officers weeded out would-be immigrants with diseases which would cause deportation if they landed in America.

Dr. Blue was second in command in the conquest of the last yellow fever epidemic in this country, in New Orleans in 1905. He took charge of the sanitation of the Jamestown Exposition in 1907, giving special efforts to killing off the mosquitoes. In May 1910, he represented the Service at the International Congress on Medicine and Hygiene at Buenos Aires. This was followed by extensive sanitary surveys in South America. That year he also studied in Europe and was graduated from the London School of Tropical Medicine.

His plague triumphs in San Francisco, his world travels, his sharply specific medical experience, all added to an air of assurance which connoted success. This left him free to approach each new project with friendliness. Charles Felton, who served as Surgeon General Blue's personal secretary—as he had served Surgeon General Wyman before him—said that Dr. Blue brought to the Public Health Service “an era of good feeling.”

This feeling so permeated the environment of Dr. Blue that former rat-catchers who had worked with Dr. Blue in the plague campaign in California had no hesitancy in visiting his Washington office in the Butler building on Capitol Hill when they came to Washington as tourists.

“Just dropped in to visit with Dr. Blue for a minute,” the far-afield rat-catcher would explain to Mr. Felton.

Congress entered into the spirit of good will by passing the law requested by Secretary of the Treasury MacVeagh, changing the name to Public Health Service, signed by the President on August 14, 1912. It authorized additional Federal functions in public health work. And it raised the pay of commissioned medical officers.

Said Surgeon General Blue: “The passage of this law marks a new epoch in the history of the Federal Government, and it is believed, clearly recognizes the Public Health Service as the central health agency of the Nation.”

He pointed out that up to the time of its passage, all federal scientific investigations had been limited to cooperation with State and municipal health authorities in their measures for the prevention of the spread of contagious and infectious diseases.

He added that it had long been recognized, however, that “there was need of additional authority to undertake field investigations of scientific and practical public health problems.”

These broader federal powers were conferred in the 1912 Act by giving the Public Health Service authority “to study and investigate the diseases of man and propagation and spread thereof, including sanita-

tion and sewage and the pollution either directly or indirectly of the navigable streams and lakes of the United States."

Said Dr. Blue, "There is thus abundant authority for both laboratory and field investigations which, with provision of adequate facilities, will insure performance of a greater amount of necessary sanitary work."

It is notable that he included poor housing, an item usually delegated to the welfare field, in his listing of "highly important problems which now await solution."

"Among them may be mentioned the determination of the conditions causing pellagra and a number of other diseases of unknown etiology, the influence of those diseases on interstate traffic, the standardization of biologic and other therapeutic products, the determination of the relation of housing and other conditions to labor efficiency, and the prescribing of reasonable standards to control stream pollution," he said.

"In one section of the country the question of pollution of streams is pressing for solution; in another, it may be industrial accidents and poisoning; in another, the relation of milk supply to infant morbidity; and in still another, the bearing of traffic and transportation on the continued prevalence of communicable disease."

The new law and the positive attitude of the new Surgeon General heartened Secretary MacVeagh as he prepared to bow out. President Taft was defeated by Woodrow Wilson in the election of November 1912. In his final annual report dated December 2, 1912, Secretary MacVeagh said: "It is a matter of highest congratulation that Congress at its last session decided to significantly enlarge the active functions of the Public Health Service, and at the same time corrected some of the deficiencies of the pay of those engaged in this distinguished work."

The sudden death of Dr. T. B. McClintick from Rocky Mountain spotted fever on August 13, 1912, the day before President Taft signed the Public Health Service Act, again called attention to the risks daily taken by its medical officers.

Dr. McClintick had been sent from the Hygienic Laboratory to Victor, Montana, as the Federal Government's expert in the 1912 study of the possibility of eradicating ticks in a small, heavily-infested area. The plans for this work were left by Dr. H. T. Ricketts. The method used was dipping of livestock and eradication of small animals. Experiments were also conducted in testing the susceptibility of wild mammals to experimental inoculation with spotted fever. Dr. McClintick had completed his work, had drafted his report, and had arranged for the transfer of the animal-inoculation experiments to the Hygienic Laboratory in Washington, D.C., when he contracted spotted fever. He made his trip home anyhow, seeing his wife before he died in a Washington hospital. The report he had written was printed in the 1912 annual report of the Public Health Service.

In that report, Dr. McClintick said: "The studies of Dr. Ricketts



on spotted fever have been of the greatest value, and it has been endeavored to take up his work where he left off and to continue by putting into effect his plans and recommendations."

On June 23, 1913, President Woodrow Wilson signed the Sundry Civil Appropriations Act which provided the funds which would make the new Public Health Service law really effective—\$200,000 for field investigations; an additional \$47,000 ear-marked for the conquest of pellagra; \$25,000 ear-marked to fight trachoma in the field; and the \$15,000 allocated to the Hygienic Laboratory raised to \$20,000. This improved appropriation resulted from the meticulous work of Dr. John W. Kerr, Assistant Surgeon General in charge of Scientific Investigations. He planned the medical research and the field work to make it effective.

One of the first major campaigns this made possible was a determined attack on the problem of trachoma present in the Appalachian Mountain regions of Kentucky and Tennessee and the Ozarks of Missouri and Arkansas, and among Indians in several States.

Trachoma is a contagious, chronic inflammatory granulation of the eyelids, highly painful, causing its victims to shrink from the light. It can be cured by an operation which removes the granulated tissues. When neglected, it often causes blindness.

It was long regarded as an imported disease. Medical officers of the Public Health Service got their experience in the care of trachoma at the hospital for immigrants on Ellis Island. For many years, trachoma was the chief cause for the rejection of immigrants.

Trachoma was first called to the attention of Congress as a serious threat in some remote areas by the State Board of Health of Minnesota, which asked Federal aid to combat it among the Indians. Surgeon Taliaferro Clark of the Public Health Service was sent to investigate. Among 545,253 Indians inspected under his supervision, forty-six percent had trachoma. They were mostly miners, and it was thought that the disease had been brought to them by men of foreign birth who came in to help work in the mines, living in unsanitary boarding houses. The survey was broadened to include the Indian schools. Of 39,321 Indian children examined in the boarding schools, 8,940, or 22.7 percent had trachoma. It then was revealed as one of this country's oldest diseases, rife in the areas occupied by Appalachian mountaineers.

Surgeon John McMullen, reared in Georgia, had learned the surgical and hygienic care of trachoma at Ellis Island. At the request of health authorities in Kentucky, he was sent on July 1, 1912, to make a trachoma survey in the mountainous counties of Knott, Perry, Leslie, Breathitt, and Owsley, and of Clark in the bordering Blue Grass region. About 500 of a total of 3,974 persons examined had trachoma, more than twelve and a half percent.

Dr. McMullen, a large man who rode on muleback into mountain country that he had understood from boyhood, came out of it with chal-

lenging facts. He found large families the rule among the mountain folk—an average of eight or ten children per family.

"The whole family often sleep, live, and cook in the one room of the home, and in addition, use the same towel for days without changing, and wash in the same basin, which is often a stone partially buried beside the well and having a deep depression on the top, the thorough cleaning or even emptying of this rudimentary basin being practically impossible," read a portion of his report.

"Some of the houses have no windows, and they are so small as to lack the necessary air space and ventilation, while in winter they are closed as tight as construction will permit. If a disease as contagious as trachoma is introduced, all the facilities for its rapid transmission will be found present."

When the appropriations big enough to allow for action became available, "Big Doc" McMullen, who was becoming beloved by the mountain folk, set up a central office in Louisville. His plan was to take eye-saving operations to the people by setting up temporary 20-bed to 35-bed hospitals and himself moving from place to place. Each hospital would have a physician, and from two to four nurses who would fare forth on horseback and find the trachoma patients. This pioneering-type plan worked well.

Dr. McMullen open his first field hospital at Hindman, Kentucky, on September 4, 1913. In his first year of work he distributed more than 10,000 copies of a pamphlet, "Trachoma, its Nature and Prevention," in eastern Kentucky. During the next eleven years, he had hospitals in five other Kentucky towns—Hyden, Jackson, London, Pikeville, and Richmond. Such hospitals were also set up in Tazewell and Knoxville, Tennessee, in Coeburn, Virginia; Russelville, Arkansas; Pelham, Georgia; and Rolla, Missouri. Entirely outside this Southern region, a trachoma hospital was also set up at La Moure, North Dakota. Trachoma treatments were given in Indian Schools.

Patients traveled hundreds of miles from many states, to the temporary Appalachian hospitals. In the first six years between 9,000 and 10,000 persons were treated, of which 4,000 were found to be cured.

The house-to-house educational campaign conducted by the nurses under the direction of Dr. McMullen concentrated on cleanliness—getting rid of the common wash basin, the common towel, and, with other diseases in mind, the common drinking cup.

This humanitarian work being done by the Public Health Service in the Southern mountains was brought to the attention of Congress by Surgeon General Blue.

"Children who have been unable to attend school because of trachoma have been relieved and now have sufficient vision to enable them to get an education," he said. "A good example of this, but by no means an isolated one, is the case of a little girl 11 years old who contracted

the disease in infancy. So painful was the light that she was unable to see at all, had to be led around, and was known locally as the 'blind girl.' She was operated on in one of the trachoma hospitals and given treatment for some weeks, with the result that she has been completely relieved of trachoma, her eyes have been saved, and she will now be able to attend school for the first time when the season begins. The father of this little girl is very poor; and but for the proximity of the Government hospital with its free treatment, she would have continued as a focus of infection and ended her days in hopeless blindness."

Again, Surgeon General Blue described the prodigious task done by one district nurse.

"Besides the house-to-house visits made by the hospital doctors and nurses, one nurse was detailed exclusively for the district work," he said. "During 10 months, beginning September 1, she visited 2,820 homes in the vicinity of the London, Kentucky, and Coeburn, Virginia, hospitals and in neighboring counties. There were 15,510 persons in these homes, and 494 of them were reported by the nurse to have diseased eyes. She also visited 117 schools, with an aggregate attendance of 2,940 pupils, and reported 316 of them to be suffering with the diseased eyes. During the year the district nurse rode 4,094 miles on horseback to reach the homes visited."

This dedicated nurse brought in a statistical report on the families drinking polluted water and on the scarcity of sanitary privies.

Said Surgeon General Blue: "Many people living in rural and isolated districts previously skeptical or even antagonistic to sanitary measures have been taught by the doctors and nurses at these hospitals that trachoma and many other diseases are due solely to their way of living and are entirely preventable."

Surgeon General Rupert Blue early placed typhoid fever high on the list of diseases slated for elimination. Of typhoid he said: "There is probably no single disease whose study is of as great importance at the present time. It prevails in practically every part of the United States and is spread by many agencies, and any light thrown on its transmission and prevention will have a bearing on the improvement of sanitary conditions generally."

He listed as places where typhoid had been investigated during the year before he became Surgeon General as Texarkana, Ark.-Tex.; Lincoln, Nebr.; Oskaloosa, Iowa; Washington, D.C.; and in rural districts of Virginia.

On the Public Health Service staff was an outstanding investigator of typhoid fever, Dr. Leslie L. Lumsden. In 1906, he had been one of the board of three medical officers appointed by the Public Health Service at the request of the District of Columbia to investigate the increased prevalence of typhoid fever in Washington, D.C. The other two members were Dr. M. J. Rosenau, director of the Hygienic Laboratory; and Dr.



Joseph H. Kastle, chief of the Division of Chemistry. When Dr. Rosenau went to Harvard University in 1909 as Professor of Preventive Medicine, Dr. Anderson took his place on the typhoid fever board. They made a continuous study for five years, reaching the conclusion that milk had been one of the major factors in spreading typhoid. However, they also established that the widespread disposal of human waste in such a way that it contaminated the water supply was a major factor in the transmission of typhoid fever.

As a result of his work on typhoid in the District of Columbia, Dr. Lumsden was delegated to make many other typhoid fever investigations. He traced a violent outbreak in a girls school at Forest Glen, Maryland, to a polluted spring from which the school got its water supply. In Des Moines, Iowa, Huntsville, Alabama, and Lincoln, Nebraska, he found that the disease was carried by the water supply. In six rural Virginia counties he attributed the disease to flies and to human carriers.

In May 1911, Dr. Lumsden had been sent to Yakima, Washington, prosperous center of the apple-growing industry, to find out why the typhoid fever in Yakima County, 150 cases per 100,000 population, was three times as high as the rate of the State as a whole.

After a very thorough study of the situation, his first conclusion was: "The high rate and prevalence of typhoid fever in North Yakima in the summer and fall of the years 1908, 1909, and 1910, was due for the most part to the local dissemination of human excreta from the insanitary privies, privy vaults, cess pools, septic tanks, and bed-sides of the sick to the mouths of persons by finger, flies, foods and water."

His first recommendation was: "Abolish every insanitary privy, privy vault, cess pool and septic tank in the city and replace those in the nonsewered areas by sanitary privies."

Dr. Lumsden pointed out that Yakima could well afford to buy a sanitation transformation. He recommended the formation of "an efficient county health organization" for which he obligingly drew up a detailed blueprint. His plan even included the hiring of a "professional female nurse."

Yakima County accepted Dr. Lumsden's recommendations in toto. It thus became the first county in the United States with a full time, salaried, organized public health service.

The Yakima County health organization consisted of one full-time health officer, Dr. Thomas Tetrau, one sanitarian, one public health nurse, and one office clerk. Because it had this full staff, Dr. Lumsden contended it truly was the first such department even though Guilford County, North Carolina, which employed only one physician, claimed the credit.

Dr. Rupert Blue immediately picked up this notable Yakima advance as a pattern for the nation as a whole. He directed Dr. Lumsden to write a bulletin on typhoid fever for national distribution. It was titled: "The



Courtesy National Library of Medicine, PHS

Dr. Leslie L. Lumsden, for many years a powerful influence in the Public Health Service. He set up the county health system, and made a minority report which kept the Public Health Service from merging with the Army Medical Service in World War I. He became this country's foremost "shoe-leather epidemiologist."

Causation and Prevention of Typhoid Fever—with Special Reference to Conditions Observed in Yakima County, Washington." This bulletin not only told how to avoid typhoid, but also how to organize a county health service, how to stage a public health campaign, and how to build several types of sanitary privies.

Dr. Stiles, famous for his privy-building campaign against hookworm

disease, was given full credit for several of the sanitary privy designs in the Lumsden report on typhoid fever. However the most elaborate design of all was captioned, "The Original L. R. S. Privy" (Lumsden, Roberts, Stiles).

Dr. Stiles was continuing his Southern surveys of hookworm disease. At the end of 1911, he had counted up 719 counties having hookworm infestation among the 884 counties in ten states. He had made a sanitary survey of 125 counties in 9 states. Dr. Stiles said that 43,448 rural homes had been inspected, and of this number 21,308 had been marked zero in sanitation, in respect to soil pollution, "because they had no privy at all." Surgeon General Blue had a set of charts on hookworm disease and soil pollution prepared for the Service. The entire edition was almost immediately exhausted. A new edition of 5,000 sets was authorized by Congress for distribution by Senators and Representatives, as part of the national campaign for rural sanitation. From time to time, Dr. John W. Kerr was able to obtain additional appropriations from Congress for rural sanitation.

The many typhoid epidemics of the time were being largely blamed on the water supply. Women's clubs in the vicinity of the Great Lakes, where typhoid was prevalent, made water pollution a subject of discussion. They appealed for help to the Public Health Service.

Before Surgeon General Blue was appointed, Dr. Allan J. McLaughlin, an expert on water pollution, had been assigned to the Hygienic Laboratory to take charge of an investigation of interstate and international waters with special reference to the spread of typhoid.

Dr. McLaughlin was the investigative, able type of medical officer who could take over, and solve, problems of many different types. He had been concentrating on cholera and the beri beri which was causing a high infant death rate in the Philippines when he was sent to California to establish a rat-free belt in the vicinity of San Francisco under Dr. Rupert Blue. He barely had this done when he was summoned to Washington by Surgeon-General Wyman to survey the Canadian boundary waters, a task he continued under Surgeon General Blue.

In Manila he had amply proved that not all cholera came from drinking polluted water. He had demonstrated to the scientific world the importance of human bacillus-carriers in cholera. He had shown that in Bilibid Prison more than six percent of the healthy prisoners were carriers of cholera. This explained why cholera cropped up almost annually in institutions where the health authorities had absolute control over the food and water supplies.

In Washington, Dr. McLaughlin said he had no desire to magnify the importance of water as an agent in the transmission of typhoid fever.

"Special stress is placed upon water-borne typhoid because of its wide prevalence in the United States and the comparative ease with which it may be eliminated," he said.

Dr. McLaughlin completed sanitary surveys of the entire Great Lakes



Basin of the American side from Duluth, Minnesota, to Ogdensburg, New York; and also of the Missouri River from Sioux City, Iowa, on down to its mouth. In his reports on these studies, he gave statistical tables which showed this country to have a far higher incidence of typhoid fever than Europe. He found "an undue prevalence of typhoid" in all Missouri River cities except St. Joseph.

One town cited as having a typhoid, diarrhea, and infant death rate "out of all proportion" was Niagara Falls. Dr. McLaughlin said that sewage from Buffalo was swept by the Niagara River into the turbulence of the falls so swiftly there was no chance for the water to be purified.

"One thing is certain—the Niagara River cannot be used as a sewer and at the same time be expected to furnish safe drinking water at all times without filtration," he said.

The sweeping conclusion he reached, which gave the women's clubs plenty to work on, was: "The undue prevalence of typhoid fever in the United States has been characterized as a national disgrace, and this characterization is not unreasonable or unjust, in view of the fact that much of the typhoid fever is preventable by one simple measure—the installation of a safe water supply."

The next task taken on by Dr. McLaughlin was Director of Field Work for the International Joint Commission in its 1913–1914 investigation of pollution of the Boundary Waters between the United States and Canada. He supervised seventeen laboratory stations covering more than two thousand miles of boundary waters, involving bacteriological examination of 20,000 samples of water. He completed this work within six months, and made recommendations to the Commission for correcting the pollution.

From international health Dr. McLaughlin transferred to the development of a state health system, again on loan from the Public Health Service. The Governor of Massachusetts asked that he be permitted to act as first Commissioner of Health under a new law which abolished the Massachusetts State Board of Health and set up instead a Commissioner of Health and a Public Health Council. The new Massachusetts system came to be considered a model for many other States to follow. And as time went on, many another state followed the example set by Massachusetts, and borrowed some skilled Public Health Service medical officer to act for a term as State Commissioner of Health.

Dr. McLaughlin divided Massachusetts into eight districts with a full time health officer in charge of each. He installed a system of central buying. He intensified disease reporting. He insisted that venereal diseases be regarded as a public health problem, and established a State Wasserman laboratory to make tests for syphilis. He obtained authority from the State legislature to manufacture salvarsan, which had been costing \$4 a dose under German patents, for the treatment of syphilis. He put into effect a State program, including the building of sanitariums, to

combat tuberculosis. He set up a Committee on Child Conservation and had a complete child welfare survey made in the State of Massachusetts.

The disease-producing potential of milk as well as water was a continuing concern of the Hygienic Laboratory. An early study as to whether raw or pasteurized milk was best for babies brought to that unique institution its first woman technician. She was Miss Rose Parrott, a nurse, employed to assist in taking care of the babies brought to the milk station opened by the Laboratory on August 5, 1912.

Many years later, Alice Catherine Evans, one of the scientists who helped solve it, told in her memoirs the rest of the story of Rose Parrott, one of the less-heralded heroines of the Hygienic Laboratory.

"Her name never appeared on the list of Laboratory personnel, but she was so much a part of the life of the institution that she should have a place in these memoirs," said Miss Evans.

"She was young, animated, beautiful and skillful. With these qualities, of course, she was popular. When the study which brought her to the laboratory was completed, she remained to become an expert technician. She assisted in various investigations until one day in 1944 she became infected with a culture of *Pasteurella tularensis*. She died of tularemia a few days later," while under the care of Dr. Luther Terry, who later became Surgeon General.

The 1912 Public Health Service law specified stream pollution as a subject for special study. The additional funds provided by Congress in 1913 made possible the immediate establishment of a field unit to make this study on the river which had been chosen—the Ohio River, important to several states, polluted by the refuse of many industrial cities. The broad purpose was to find out how much stream pollution in general was endangering the supplies of safe drinking water in cities. Dr. Wade Hampton Frost, who had now spent four and a half years at work with the brilliant scientists of the Hygienic Laboratory, and who had pursued studies of the pollution of water supplies as a factor in the spread of disease as first shown by Dr. John Snow, an English physician, with regard to cholera and of Lumsden with regard to typhoid, was assigned by Dr. Rupert Blue to head the Ohio River studies.

Cincinnati, mid-point on the Ohio River, probably was chosen as headquarters for the Stream Pollution Investigation Station because the Public Health Service happened to own there a Marine Hospital not in active use which could be converted to that purpose. It was the Kilgour Mansion, built about 1815 by David Kilgour who had come to Cincinnati from England in 1798 to become one of the city's most prosperous hardware merchants. The home he built was a sturdy brick colonial, with a chimney at each end, and an ornate front porch with double columns. It had an excellent view of the Ohio River.

The United States Government had purchased the Kilgour Mansion for a Marine Hospital in 1882, under a law permitting establishment of



Courtesy National Library of Medicine, PHS

Dr. Wade Hampton Frost, who set up the water pollution studies on the Ohio River at the Kilgour Mansion in Cincinnati, Ohio. He later was the first person to hold a university chair of epidemiology at Johns Hopkins University, Baltimore, Maryland.

new Marine Hospitals in Cincinnati; Cairo, Ill.; New Orleans, La.; and Baltimore, Md. Congress appropriated \$100,000 for the Cincinnati hospital. The Kilgour Mansion and estate was purchased from Charles H. Kilgour, one of the founders of the Cincinnati Telephone System, for \$50,000.

The Mansion was used as an administration building and hospital wards were built. It was not a particularly convenient Marine Hospital. However, river traffic on the Ohio was materially decreasing—and so the number of river seamen seeking hospitalization was going down. The patients declined from a high of 500 in the year of 1891, to a low of 8 in the year of 1905, when it was closed. The Public Health Service decided that medical care could be better dispensed in Cincinnati at a local hospital under a contract system. Records were called in, and equipment and supplies redistributed. A complete looting of the property was prevented by allowing a watchman and a former hospital attendant to live in the basement.





Courtesy National Library of Medicine, PHS

Front view of the Kilgour Mansion, Cincinnati, Ohio, built about 1815, bought by the Marine Hospital Service in 1882 as a Marine Hospital, and converted by the Public Health Service in 1913 into a laboratory to study stream pollution.



Courtesy National Library of Medicine, PHS

A view of the Kilgour Mansion when it was serving as a Marine Hospital a decade before Dr. Wade Hampton Frost transformed it into the Stream Investigation Station.

So in 1913 the mansion stood at Third and Kilgour Streets, closed for eight years, when Dr. Frost arrived to take it over. It was even less suited for use as a laboratory to test water supplies than it had been to become a Marine Hospital. But the medical officers of the Public Health Service had been long schooled by Dr. Wyman in going with great promptness to where they were sent; and accomplishing what they were told to do with what they found or were supplied to work with when they got there. Dr. Frost made repairs and remodelled rooms as he took them over for added operations. The Kilgour Mansion continued to function as the Ohio River laboratory until 1951, when the work was transferred to the new building of the large Sanitary Engineering Center into which it had grown. There were then attempts to save the Kilgour Mansion for its historic value, but it was torn down.

Dr. Frost took into the Kilgour Mansion four other medical officers of the Service. He employed three sanitary engineers, nine sanitary bacteriologists, and one plankton expert. This was the beginning of the branching out of the Public Health Service into the field of sanitary engineering. Eventually the engineers would become commissioned officers of the Service. Dr. Frost set up five branch laboratories along the Ohio River at which to procure thousands of water samples. At Cincinnati, these samples were examined. Dr. Frost also carried forward studies in the disposal of industrial wastes and in water purification. The scientists working under him gathered information on the prevalence of typhoid fever in Ohio River cities.

The laboratory field work on Dr. Frost's Ohio River survey, a stupendous amount of detail on a 960-mile stream with 16 large tributaries draining 200,000 square miles, was completed by the end of 1916. Dr. Frost was called from it earlier that year by a devastating epidemic of poliomyelitis in New York. But he already was well on his way in a distinguished career which caused him to be called father of epidemiology.

Simultaneously there was a study of the pollution of shellfish, particularly of oysters, in coastal waters, with Surgeon Hugh S. Cumming in charge.

Every month at the crowded red brick Hygienic Laboratory at Twenty-fifth and E Streets, N.W., there was a muster and recital of fire duties. The scientists and laboratory workers came sharply to attention in their Public Health Service uniforms. The muster on September 20, 1915, was to mark the transition of a noted Federal scientist, Dr. John F. Anderson, to a post in the pharmaceutical industry. The log of the Hygienic Laboratory for that day read: "Muster of personnel. The Director, having accepted a position with E. R. Squibb and Sons, New Brunswick, N.J., made a short farewell address."

Surgeon General Blue appointed Dr. George W. McCoy, his close co-worker in San Francisco, to take his place. Until Dr. McCoy came

from his duties in Hawaii, taking charge on November 20, 1915, Dr. A. M. Stimson was acting director.

Tularemia, widely known as "the first American disease" already was one of the facets of Dr. McCoy's fame. This highly-dangerous disease is a fever transmissible to man by the bite of an infected bloodsucking fly or tick; or by lodgement on the skin of the blood or internal organs of an infected rodent; or by contact in the laboratory with the disease, as later was the case with Rose Parrott. Dr. McCoy had been one of the two men in the California Plague Laboratory who had discovered, in 1911, the bacillus which caused tularemia. This disease had been a deadly epidemic in the ground squirrels sent to the Laboratory from Tulare County, California. The other discoverer was Dr. C. W. Chapin, working with Dr. McCoy in the plague project. Dr. Chapin had experienced the human disease of tularemia for twenty-eight days before he and Dr. McCoy identified the bacillus. In the course of the experiments, Dr. Chapin tested his own blood.

Dr. Edward Francis, the capable scientist at the Hygienic Laboratory who became the outstanding authority on tularemia, said of it in 1925:

"It is the only disease of man that has been elucidated from beginning to end, by American investigators alone. These investigators have worked in widely separated states, and in most instances each made his first contribution while in ignorance of the work of others."

He pointed out that tularemia was called "deer-fly fever" in Utah because of the belief that it was due to the bite of a sucking fly found on deer and on horses. Some years later a disease known as "rabbit fever" among market men in Washington, D.C., also was identified as tularemia. The bacillus of that disease was found to be the cause of an infection of the eye in Cincinnati, Ohio. And what was known as "the glandular type of tick fever" in Idaho, was traced to it. He found out that a single attack gives permanent immunity in man. He was continuously exposed to this disease for sixteen years, accidentally reinfecting himself four times, and getting therefrom only an immune reaction as in a revaccination with smallpox vaccine.

No single disease could better illustrate the necessity for the centralizing function of the national laboratory in Washington, D.C. All the different guises of tularemia at all places and at all times were all diagnosed at the Hygienic Laboratory overlooking the Potomac River in Washington, D.C., by Dr. Francis as one and the same disease.

As head of the Hygienic Laboratory, Dr. George Walter McCoy made one of the most substantial records of scientific progress in the history of the Public Health Service. He was dedicated to the concept of intellectual freedom for the individual scientific investigator.

So that scientists would not be hampered by laws urged by antivivisectionists, Dr. McCoy served for more than twenty years as a member of the Committee for the Protection of Medical Research of the Ameri-



can Medical Association. He provided Congressional committees with information on the worth of animal experiments in the saving of human life.

To the veteran researchers already working in the Hygienic Laboratory he granted full liberty to keep right on pursuing their scientific leads. And he rallied young men and women capable of doing original thinking as investigators. He indoctrinated them in how to establish scientific facts by the experimental method through carefully-controlled investigations.

He continued to pursue his own investigations, often with the help of some young scientist. Simultaneously, and as a part of each day's work, he served as a stimulating teacher to all under the roof of the first Hygienic Laboratory building—and to all who took up work in the buildings later added to the Laboratory. He was considered a painstaking and skeptical investigator and an austere critic.

Dr. McCoy had spent thirteen years in field studies of plague and of leprosy on the West Coast and in Hawaii. In his plague studies, he had examined about a hundred thousand rats. This had resulted in the classification of some seven hundred rat tumors. He had become a firm believer in large-scale field investigations as a necessary accompaniment to laboratory work in the conquest of crippling and killing epidemics. That was the way he ran the Hygienic Laboratory.

One of the diseases on which the Public Health Service was determined to make an effective attack was pellagra, hardly known in 1907, but by 1912 one of this country's most devastating diseases. It was prevalent in the poverty-stricken South, but had been found in forty States and the District of Columbia.

Particularly notable in retrospect was the 1912 report resulting from an inspection of the Reform School for Girls in the District of Columbia which was classified as a federal institution. President Taft had issued an executive order that year directing Surgeon General Blue to make a sanitary inspection once a month of all Government buildings. A talented medical officer, Dr. B. S. Warren, was detailed to this duty. He therefore was called upon to inspect the Reform School for Girls when one of the inmates died at Freedman's Hospital of a disease diagnosed as pellagra.

"The sanitary conditions of the institution were found to be excellent with the exception of the diet furnished to the inmates, which did not contain enough meat or other protein element," was precisely the phrasing of Surgeon General Blue with regard to the Warren findings at the Reform School for Girls as published in his 1912 annual report.

"The lighting of the buildings, both natural and artificial, was sufficient. The ventilation, dependent on natural methods, was in all cases adequate. Plumbing, toilets, sinks, etc., were all in apparently safe condition and kept clean. There was no evidence of overcrowding.

"No physical examinations were made, but a general inspection of the inmates showed that they were in apparently normal condition as to weight and proportional height, no evidence of illness being noted. An

isolation hospital in a suitable location was maintained, and proper precautions taken on the admission of inmates to keep them under observation in hospital to prevent the introduction of communicable diseases.

"Dr. Warren recommended that a better-balanced diet be furnished and records kept of the quantity given each inmate, together with the records of the weight and height of the inmates on admission and monthly afterwards, while the advisability was suggested of keeping records of the hemoglobin percentage of the blood of the inmates."

Dr. Warren in a single inspection of pellagra, had chanced across both its cause—protein deficiency—and its cure—a better balanced diet. But nobody knew how right he was.

At the Marine Hospital in Savannah, Georgia, where it was being studied by the Public Health Service, with field studies in Georgia, Kentucky, and South Carolina, the chief investigator, Dr. C. H. Lavinder, was baffled by it.

In the same 1912 report which carried Dr. Warren's findings, Surgeon General Blue said of pellagra: "When consideration is given to the nature of the disease, its chronicity and termination often in invalidism, insanity or death, the lack of definite knowledge as to its causation and transmission, the unsatisfactory results of treatment, its rapid and continuous spread, the class of people affected, and the uneasy state of the public mind in many places, then the thorough investigation of this mysterious disease assumes immediate importance."

Pellagra was indeed a debilitating and deadly disease. It caused the skin to turn flaming red and then scaly. Then came stomach disorders, diarrhea, and depression. Victims often became insane. The death toll was tremendous.

The investigations were enlarged by the 1913 appropriation act, and in 1914 an additional \$47,000 was appropriated to set up a laboratory for special study of pellagra in Spartanburg, S.C. Dr. Lavinder was relieved from pellagra duty, and Dr. Joseph Goldberger put in charge of the investigations with headquarters at the Hygienic Laboratory in Washington.

Dr. Goldberger noted that pellagra attacked only the inmates, never the physicians and attendants of the almshouses and orphanages where it was prevalent. Most medical men of the time believed that pellagra was caused, like many other diseases, by a particular organism. Dr. Goldberger argued that if a bacillus were the cause, some of the doctors and nurses and other attendants working around the pellagra patients daily, would get it too.

He pointed out that the one physical difference between the people who were cared for in a public institution and the people who cared for them was the diet that they ate. For inmates the routine diet was hominy grits, mush, molasses, cabbages, potatoes, rice. Doctors, hospital employees,

and research personnel ate also meats, milk, eggs, a variety of vegetables, and fresh fruits.

From Washington, Dr. Goldberger directed broadening and even more conclusive field investigations to prove the theory that he announced in 1914—that pellagra was caused by dietary deficiency and could be cured by including the lacking nutrients in the diet.

Pellagra field investigations went on for years at the Marine Hospital in Savannah, Georgia; at the Georgia State Sanitarium in Milledgville; at the Baptist Orphanage and at the Methodist Orphanage in Jackson, Mississippi; and, with special clinical and laboratory projects, at Spartanburg, South Carolina.

A dramatic experiment with convict volunteers on a prison farm at Greenfield, Mississippi, near Jackson, was made possible through the cooperation of Governor Earl Brewer, of Mississippi. The Governor promised a pardon to prisoners who would take part in Dr. Goldberger's test to prove that pellagra could be produced in a human subject by means of a faulty diet. Twelve convicts volunteered, all but one remaining throughout a dietary test which lasted from February 4, to October 31, 1915. The convicts were on ordinary diets from February 9, to April 19. The rest of the time they ate mainly biscuit, corn bread, sweet potato, maize, grits, rice, brown gravy, cane syrup, coffee and sugar—no milk, meat or fruit. Six of the volunteers developed pellagra.

Field surveys of the prevalence of pellagra were made in Arkansas, Florida, Louisiana, and Texas. How diet differed in the insane asylums of the North and of the South, what effects these diets had on pellagra, and how pellagra added to insanity, was observed in comparative surveys of twelve insane asylums in the North, and fourteen insane asylums of the South.

In December 1915, Dr. Goldberger announced these findings:

"That pellagra is not a communicable (neither infectious nor contagious) disease, but that it is essentially of dietary origin.

"That it is dependent on some yet undetermined fault in a diet in which the animal or leguminous protein component is disproportionately small, and the non-leguminous vegetable component disproportionately large.

"That no pellagra develops in those who consume a mixed, well-balanced and varied diet."

Dr. Goldberger said that pellagra could be largely prevented in the South by introducing common dried legumes in the winter diet. He suggested that the people in the mill villages grow beans and peas and dry them for winter consumption.

The pellagra investigations became nutrition studies. Highly-milled flour as well as corn meal was found lacking in pellagra-preventing nutrients. Dr. Goldberger started the development of vitamin preparations at



both the Hygienic Laboratory and at Spartanburg—from brewers' yeast, ox liver, wheat bran, rice polishings and field peas.

Pure, dried brewers' yeast was finally settled upon as the best and cheapest vitamin safeguard.

Such a life-saving fact, once found, was immediately put into the widest possible use by the pellagra States in cooperation with the Public Health Service. Brewers' yeast was furnished at cost by the Health Departments of all States where pellagra was prevalent. This custom was continued long after pellagra ceased to be a general threat. In Georgia, the Department of Public Health discontinued its distribution of brewers' yeast only in 1962.

With Dr. McCoy's complete cooperation, all the top scientists at the Hygienic Laboratory cheerfully served as guinea pigs for Dr. Goldberger's pellagra experiments. Witness this entry in the Laboratory log:

"June 7, 1916—In order to contribute data for the solution of the problem of the infectuous or non-infectuous nature of pellagra the following officers of the Service submitted to a feeding experiment conducted by Surgeon Goldberger, in charge of Pellagra Investigations.

Ass't. Surg. Gen. R. H. Creel

Surgeon Joseph Goldberger

Surgeon G. W. McCoy

Surgeon A. M. Stimson

Surgeon E. A. Sweet

Passed Assistant Surgeon W. F. Draper

George W. McCoy,

Director"

Dr. McCoy signed twice, first as a participant, and then as head of the Hygienic Laboratory to make the entry official.

As pellagra studies went on, at least two researchers had the courage to point to the underlying cause of this disease—poverty.

They were Dr. B. S. Warren, the increasingly outstanding medical officer who had made the noteworthy observation that the diet of the girls in the Washington, D.C., reform school was deficient; and Edgar Sydenstricker, brilliant Public Health Service statistician, researcher and economist, and the brother of the novelist, Pearl Buck.

On October 22, 1915, Edgar Sydenstricker published a report titled, "The Prevalence of Pellagra—Its Possible Relation to the Rise in the Cost of Food." Mr. Sydenstricker showed that corn bread, biscuit, fat pork, and coffee formed a large part of the diet of all families in Southern mill villages where pellagra flourished. The fat salted pork, which in many villages was the only meat used, contained little lean. No yeast bread was eaten. Corn bread or biscuit was the fare of all families.

The Sydenstricker study showed that Southern white families were

moving from farms into industrial villages faster than in any other part of the country, and that when they moved their diets became less nutritive as they were too poor to buy the cattle, poultry, milk and eggs which they sometimes had on the farm.

"This is a matter not only of the size of the family income, but also of the retail prices of food," said Mr. Sydenstricker. "We must therefore regard the increase in food prices as probably the most important of all the factors affecting the wage working population, especially of those whose economic status is close to the margin of subsistence."

The Sydenstricker report prompted the organization of a more detailed study of 1916 of the relationship of family living costs to pellagra incidence in seven cotton mill villages in the vicinity of Spartanburg, South Carolina.

Sydenstricker was then joined by Dr. Joseph Goldberger and Dr. G. A. Wheeler in a report on the disabling sickness in these villages in relation to family income. In practically every age period for either sex the sick rate was distinctly greater in families of low incomes than in families with incomes above the average.

This study of pellagra in the Southern mill villages was essentially an extension of the investigations of occupational diseases and the hygiene of workers being conducted in the North under the direction of Surgeon J. W. Scherewschewsky of the Public Health Service. Headquarters for the industrial studies was the Pittsburgh Marine Hospital where a series of laboratories—bacteriological, physiological, and chemical—were set up.

A special study of the health of garment workers was conducted by the Public Health Service in cooperation with the joint Board of Sanitary Control of the Cloak and Suit and Dress and Waist trades in New York City. Cornell University Medical College granted use of laboratories for studies of health hazards incident to the use of gas-heated pressing irons. These were made by Sanitary Chemist Charles Weisman under the general direction of Dr. Scherewschewsky. The conclusion was that pressers were particularly exposed to chronic poisoning by carbon monoxide gas. The Public Health Service issued a warning urging use of "approved types of gas irons, carefully selected rubber tubing, gas-tight connections and a well-devised system of frequent inspection and constant maintenance."

Dr. Warren and Edgar Sydenstricker published a paper based on the data gathered in the garment workers investigation which set forth this conclusion: "The greatest number of poorly nourished, anemic, and tuberculous workers were in that group composed of the lowest paid and the least regularly employed."

On the basis of these studies, Dr. Warren and Edgar Sydenstricker produced a pamphlet, "Health Insurance: Its Relation to the Public Health," which presented the need for relief and prevention of sickness among the wage working population. A government health insurance

system was suggested for the unskilled, low-paid group, "based squarely upon the fact that all three groups—worker, employer, and the public—are responsible in varying degrees for the conditions causing the disease, and should therefore share in the effort to improve them."

As a result of this pamphlet, the fourteenth annual conference of State and Territorial Health Officers with the United States Public Health Service, held in Washington, May 13 to 15, 1916, endorsed the principles of health insurance operated under governmental systems. This Conference in its report summarized "the fundamental provisions which were recommended for inclusion in any health insurance measure proposed for National or State Governments."

That was the year in which Dr. Rupert Blue became the only Surgeon General of the Public Health Service ever to serve—and simultaneously at that—as President of the American Medical Association.

Dr. Morris Fishbein in his history of the American Medical Association said that Dr. Blue was elected its 69th President "in recognition of the remarkable development of the public health service under his direction and particularly for his efficient service in the eradication of the bubonic plague in San Francisco 1903, 1904, 1907, and 1910."

In June 1916, one month after the State and Territorial Health Officers had made recommendations for a health insurance law, Dr. Blue brought up the subject of health insurance, to be jointly financed by the public, industry and the workers themselves, in his Presidential address to the American Medical Association.

Dr. Blue said that studies of the economic and sanitary conditions affecting the health of the industrial population numbering about 30,000,000 had shown the urgent need of more effective methods for the relief and prevention of disease.

"To meet the situation," he told the American Medical Association, "there are unmistakable signs that health insurance will constitute the next great step in social legislation. Experience has shown that an adequate health insurance system should distribute the cost of sickness among those responsible for conditions causing it and thereby lighten the burden on the individual. Financial incentive may thus be given for the inauguration of comprehensive measures for the prevention of disease."

He advised that the A. M. A. study all aspects of health insurance in this and foreign countries "so as to decide on a program which would properly coordinate any proposed health insurance system with existing agencies for the cure and prevention of disease."

Early in the summer of 1916 a major epidemic of poliomyelitis broke out in New York City. This disease already had been the subject of special studies by the Public Health Service. Earliest of these were by Dr. Wade H. Frost, in Mason City, Iowa, in 1910; in Cincinnati, Ohio, in October and November of 1911; and in Buffalo, New York, in 1912. In 1909 laboratory experiments, Frost had transmitted polio to monkeys.



Tremendous excitement was aroused among scientists by an announcement by Dr. M. J. Rosenau, of the Harvard Medical School, that polio was transmitted by the bite of the stable fly. This announcement was regarded as one of the principal features of the International Congress of Hygiene and Demography held in Washington, D.C., September 23 to 28, 1912.

Dr. Frost was immediately put in charge of a project to repeat the work of Dr. Rosenau at the Hygienic Laboratory by transmitting poliomyelitis from monkey to monkey through the stable fly. In a series of experiments involving the use of thirty monkeys, positive results seemed to have followed in only three instances. A careful study of these raised doubts as to the stable fly being the culprit. The experiments were repeated at the Hygienic Laboratory the next year and absolutely failed to confirm Rosenau's results. Poliomyelitis would continue to crop up, year after year for many a year, as a challenging enigma.

The 1916 New York attack dramatically displayed the mobile possibilities and the national resources of the Public Health Service in dealing with disease. Surgeon C. H. Lavinder was sent to New York to confer with Dr. Haven Emerson, Commissioner of Health of New York City. As a result, twelve of the top medical officers of the Service—among them Dr. Edward Francis, Dr. W. H. Frost, Dr. J. P. Leake, Dr. W. F. Draper and Dr. L. R. Thompson—were sent to New York to work under the direction of Dr. Lavinder.

This epidemic was notable in the history of poliomyelitis—virulent, with high mortality, and many times larger than any epidemic previously recorded for this disease.

The work of the Public Health Service on it included:

Epidemiologic and statistical studies of the entire epidemic in Greater New York and elsewhere.

Intensive field studies of 729 cases in various places, especially in the Borough of Richmond.

Investigations with regard to paralytic disorders among domestic animals and their alleged relations to poliomyelitis in human beings.

Brief entomologic and rodent surveys in several places and the collection of autopsy material, both human and animal, for the Hygienic Laboratory. The Laboratory again failed to produce the disease in animals other than the monkey.

The number of cases in Greater New York was 9,023; in the entire epidemic area, about 20,000.

In accordance with the 1902 law authorizing special conferences of State and Territorial Health Officers on threatening diseases, a conference was called in Washington, August 17 and 18, 1916, "For the Consideration of the Prevention of the Spread of Poliomyelitis."

"We are facing another epidemic in infantile paralysis—that baffling and mysterious disease which has brought so much woe to New York City

and has thus far proven itself beyond the control of science," said Secretary of the Treasury William G. McAdoo in his address to the conference.

"I am exceedingly hopeful that as the result of the exchange of ideas here that you may at least be able to concert new measures and investigations that will give promise of the discovery soon of a remedy of this deadly disease so that it may be removed as a menace to the human race."

Dr. Haven Emerson reported to the conference that "up to yesterday morning there have been 6,653 cases and 1,497 deaths in New York City."

Dr. Frost told the State health officers: "I do not think we have excluded the possibility that the infection may be carried from person to person by insects, but I think the more general principle of a spread by carriers would seem to hold."

The first woman of science brought into the Hygienic Laboratory was Dr. Ida Albertina Bengtson in 1916. She was employed by Dr. George W. McCoy, who was quite willing to use a woman assistant.

Miss Bengtson was born in Harvard, Nebraska. She belonged to a brilliant and highly-educated Swedish family. At the University of Nebraska she majored in languages and mathematics, and was elected to Phi Beta Kappa. Shortly after graduation she went to Washington, D.C., to be a cataloguer in the library of the U.S. Geological Survey.

"She became acquainted with one of the few women who at that time held Federal Civil Service positions in science," said her long-time fellow worker, Alice C. Evans. "She compared her own professional life with that of her friend, and decided that for her the life of a scientist would be more interesting than that of a keeper of scientific books and records.

"In Ida Bengtson ideas led to action. She resigned from the U.S. Geological Survey in 1911 and entered the University of Chicago to study bacteriology, with chemistry and physiology as minor subjects."

When she had made herself enough of a scientist to pass the Civil Service test, she applied for a position in the Public Health Service.

Miss Evans recalled that Miss Bengtson had "told about the astonishment among her professors and fellow graduate students when she, a woman, received so attractive an appointment" as that at the Hygienic Laboratory.

There Miss Bengtson was to make an outstanding record for more than thirty years. Said Miss Evans: "She was an adaptable, efficient, indefatigable worker. Of a quiet, gentle, friendly nature she was readily accepted as a member of the staff. During her early years at the laboratory, she collaborated with Dr. McCoy on various problems, her name appearing as that of junior author on their reports.

"During the twenty years that followed Dr. Bengtson's admission



Courtesy National Library of Medicine, PHS

Miss Ida A. Bengtson, brought into the Hygienic Laboratory as assistant to Director George W. McCoy in 1916. She continued her scientific service for more than thirty years.

to the Hygienic Laboratory, twelve or more women scientists came. In obtaining their positions, it was well for them that the pioneer woman had fulfilled her position so capably."

Hearings on leprosy, which had been delayed but had remarkable results were held on Capitol Hill in February of 1916. Two days of



discussion centered on the subject "Care and Treatment of Persons Afflicted with Leprosy." The legislation under consideration was S. 4086, a bill introduced by Senator Joseph E. Ransdell, of Louisiana, "to provide for the care and treatment of persons afflicted with leprosy, and to prevent the spread of leprosy in the United State."

William M. Danner, appointed chairman of the American Mission to Lepers in 1911, had become so indignant at the inhumane treatment of leprosy patients in this country that he sought out Surgeon General Rupert Blue of the Public Health Service to urge the establishment of a National leprosarium. Surgeon General Blue referred Mr. Danner to Senator Ransdell, chairman of the Senate Committee on Public Health and National Quarantine.

"In introducing this bill I had not heard from a single man in Louisiana on the subject," Senator Ransdell explained at the hearings. "This matter was first brought to my attention by Mr. Danner . . . He told me of the number of lepers in the United States, of the horrible condition of many of them, some of them being in solitary confinement and suffering like criminals, and his story impressed me with the necessity of something being done, and I introduced this bill at his suggestion."

Seldom has the National scene been better set for an unusual undertaking. Surgeon General Blue himself had worked on leprosy when he served as an advisor to the Government of Hawaii. He had on his staff in Washington two medical officers, both valued assistants to him in San Francisco, who had even more experience with leprosy in Hawaii. One was Dr. W. C. Rucker, Assistant Surgeon General in charge of Domestic Quarantine, who had campaigned for the appointment of Dr. Blue. The other was Dr. George W. McCoy, Director of the Hygienic Laboratory, who had closed out the Federal leprosy experimental station on the island of Molokai just before coming to Washington. Both Dr. Rucker and Dr. McCoy testified in behalf of the Ransdell bill.

Chairman Ransdell, of course, represented one of the two States which already had leprosariums, Louisiana and Massachusetts. Their stories were retold in Washington. The presentation made concerning the leprosarium at Carville, Louisiana, was spectacular.

Dr. Isadore Dyer, then the dean of the medical school of Tulane University, came to Washington from New Orleans to testify. He was the physician, a specialist in diseases of the skin, who had started the leprosarium at Carville about twenty years earlier in the face of odds that were almost overwhelming. His tremendously powerful appeal was a simple summary of how he had succeeded in starting a leprosarium in Louisiana.

Dr. Dyer had a special interest in leprosy as a young professor at Tulane University Medical School in New Orleans. When John Smith Kendall, a young reporter for the *New Orleans Daily Picayune*, conducted

a campaign calling attention to the fact that Louisiana had an unusually large number of persons suffering with Hansen's disease, and that they were not well cared for, Dr. Dyer joined his cause. Kendall wrote an article about eight men and two women victims living together in a squalid cottage rented by the city of New Orleans. Dr. Dyer appealed for a home for these victims.

On June 9, 1894, Dr. Dyer presented the Louisiana legislature with a plan, endorsed by the local medical society, to set up an institution for persons having leprosy. Dr. Dyer planned to create this institution close to Tulane University where it could be used as a hospital for experiments in the treatment of Hansen's disease, and as a laboratory to study the bacillus which Hansen had discovered. The legislature in August, 1894, voted a small sum to buy the place; and created a Board of Control of four physicians and three laymen to set up and run the leprosarium. Dr. Dyer was made president of the Board.

But the citizenry rose up against him in every place where he tried to set up the institution. He could not buy a single site for the treatment of leprosy in the city of New Orleans.

At last Mr. Allen Jumel, a member of the House of Representatives of the State of Louisiana, and a member of the Board of Control of the Leper Home was able to negotiate a five-year lease on a site eighty-five miles up the Mississippi River. Both Mr. Jumel and his wife owned estates near there. He put the deal over under the pretense that it would be used as an ostrich farm. It was purchased outright by Louisiana in 1905.

Known as Indian Camp Plantation, the leprosarium consisted of a decaying manor house and dingy slave quarters. Its magnificent live oak trees were hung with Spanish moss. A high levee separated it from the Mississippi River. To this run-down farmstead five men and two women patients were taken by coal barge on the night of November 30, 1894. No other form of transportation could be arranged for these unfortunates. The barge was towed by a tugboat containing its captain and crew, Dr. Isadore Dyer, a group of newspaper reporters, a ton of provisions, bedding, and eighty beds donated by the New Orleans Charity hospital to Carville, and taken there on the first boat run. Mr. Jumel, on horseback, met the tug and its barge. The patients were put into one of the slave cabins in the care of Dr. L. A. Wailes, resident physician, but not to be forgotten by Dr. Dyer.

Late in March 1896 Dr. Dyer made a trip to Baltimore, Maryland, to arrange for "the nursing of the patients and the household management" at Carville. Dr. Dyer contracted on March 25 an agreement with Mother Mariana, in charge of the Daughters of Charity of St. Vincent de Paul at Emmitsburg, Maryland. The State Board of Control of the "Leper Home" in Iberville Parish, Louisiana, promised to furnish sleeping and living arrangements to the Sisters of Charity to be sent there by

Mother Mariana. The Board agreed to set up for them a chapter and to arrange for the services of a priest. The Board would pay each sister one hundred dollars a year "for clothing and other incidentals." The Sister Superior in charge at Carville was to be held accountable to the Board alone for management of the Sisters. They were to have full charge of domestic management of the kitchen and household; and of the detail of nursing which was at all times to be under the direction of the "resident physician."

The final paragraph of the agreement ran: "This contract cannot be annulled, except my mutual agreement between the State Board of Control of the Leper Home and the Order of the Sisters of Charity."

The first group of four Sisters of the order founded by St. Vincent de Paul and officially named Daughters of Charity, arrived at Carville April 27, 1896, with Sister Beatrice Hart in charge.

Dr. Dyer immediately introduced at Carville a medicine long used in India in the care of leprosy—chaulmoogra oil. He found it more useful than any other medicine tried out in leprosy treatment.

In the 1916 hearing, Senator Reed Smoot, of Utah, remarked that there is no cure for leprosy.

Dr. Isadore Dyer replied that he had cured thirty cases in the last twenty years, thus dating his first cure back to 1896.

In pleading for the sufferer from leprosy, Dr. Dyer said: "He not only bears all the burdens of his disease, but he also bears the burdens of centuries of opprobrium which make him psychologically different from a patient suffering from any other disease."

William Danner particularly told the stories of two persecuted victims of the disease, Mock Sen, an educated young Chinese who died in a sealed boxcar being shuttled back and forth across State lines to shuffle responsibility for his illness; and John Early, who had been persecuted in the District of Columbia before being sent to Carville. John Early returned to Washington in 1915, and appeared at the 1916 hearing with the statement: "I am John Early, a patient from the leper colony at Carville, Louisiana. I have come to tell you gentlemen something about how much we patients need to have that colony made over into a United States hospital." Mr. Early was in and out of Carville until November 1928 when he was discharged as cured. He died in 1938, at 64 years of age.

Senator Ransdell's bill for a National leprosarium was signed into law a year later—on February 3, 1917. The acquisition of the hospital was delayed for four years more by the First World War, which this country entered on April 6, 1917. Mr. Danner made a trip to Louisiana in January 1919 to revive interest in the sale of the Louisiana home for a National Leprosarium.

The Louisiana Leper Home was purchased from the State of Louisiana on January 3, 1921. The United States flag was raised February 1,



with Dr. Oswald E. Denney in charge.

Partially as the result of researches into disease and into occupational hazards by the Public Health Service, "Safety First" became a National slogan in the year 1916. The Federal Government led this movement. Various Governmental departments joined to demonstrate the activities of the National Government in the conservation of human life through a Safety-First Exhibit in Washington, D.C. This exhibit was sent through the country in the nine exhibit cars of the Safety-First Train which left the National Capital on May 1, and returned there on August 31, 1916.

The train went over the Baltimore and Ohio Railroad through Pennsylvania, Maryland, West Virginia, Missouri, Illinois, and Ohio; through Kansas and Oklahoma on the lines of the Missouri, Kansas, and Texas Railway; and through Wyoming and Nebraska on the lines of the Union Pacific.

The exhibits in the Public Health Service car, presented by a medical officer and two attendants, showed the evils of careless garbage disposal and rat infestation; the pollution of wells from insanitary toilets; and the way in which diseases were spread by mosquitoes and flies. It depicted the dangers of the common drinking cup and roller towel, and of careless coughing and spitting. It displayed models of sanitary toilets, correct methods of rat-proofing, and of eradication of mosquitoes and flies. Motion pictures and lantern slides on health subjects were shown. Public Health Service literature was liberally distributed.

"The attendance exceeded all expectations," Surgeon General Blue reported. "The total number of visitors for the two months ending June 30 was more than 348,000, a daily average of 6,500. The motion picture audiences varied, the average being about 2,000, but frequently the gathering was composed of from 3,000 to 4,000 persons."

This impressive demonstration marked the close of predominantly peacetime pursuits for Surgeon General Blue. World War I had been raging in Europe since 1914. Soon after the reelection of President Woodrow Wilson in November 1916, it became evident that this country inevitably would also be embroiled.

Because he happened to be President of the American Medical Association that year, it fell to the lot of Dr. Rupert Blue to initiate the organization of all the physicians of the country for war, as well as of those in the Public Health Service.

In his presidential address to the House of Delegates at the New York session in 1917, President Blue proposed appointment of a committee to outline recommendations for the best method of utilizing the facilities of the American Medical Association in preparing for war. The convention promptly created this committee—Dr. Arthur D. Bevan, Dr. Alexander Lambert, and Dr. John W. Kerr of the Public Health Service. This committee did important work in mobilizing the medical profession for military service.

## Chapter 13:

### PUBLIC HEALTH IN WORLD WAR ONE— VETERANS HOSPITALS BURGEON

Surgeon General Rupert Blue  
1912-1920

#### (Part Two)

The smoothly-running life of Surgeon General Rupert Blue was drastically complicated by World War I. He fought it through to a notable success for the Public Health Service and then met a personal defeat.

Dr. Blue was one of the promoters of preparedness. Early in February of 1917, he called together a board of his top medical officers to draft a program of the war activities which the Public Health Service was best prepared to do.

This program was, in fact, precisely what the Public Health Service accomplished after at last obtaining acceptance by the Army and the Navy. It had five main points, as follows:

- (1) The sanitation of areas surrounding mobilization and training camps for Army and Navy.
- (2) The sanitary supervision of mobilized industrial forces.
- (3) Medical and surgical relief to sick, wounded, or disabled soldiers and sailors at Public Health Service hospitals and medical relief stations.
- (4) Medical and surgical relief to mobilized industrial workers.
- (5) Laboratory operations, both research and manufacture of serums and vaccines.

But President Woodrow Wilson was not ready to act. He had been re-elected in 1916 on the argument that he had kept this country out of the European war which had been raging since 1914. Wilson had at its start declared a strictly neutral policy. But when in March 1917, German submarines sank three American ships, the *City of Memphis*, the *Illinois*, and the *Vigilancia*, the President suddenly called the special session of Congress, which he originally had scheduled for a later date to consider our losses from German submarines. At that night session on April 2, 1917, President Wilson personally called for a declaration of war on Germany.

On April 6, 1917, the Log of the Hygienic Laboratory carried this stark and succinct entry: "War declared between the United States and Germany."

Even before the declaration of war, the President put the Public

Health Service on a war status. On April 3, 1917, the day after his speech to Congress, President Wilson by executive order made the Public Health Service a part of the military forces of the United States.

That was the end of business as usual at the Hygienic Laboratory. Even its Log was abandoned, omitting most of 1917, and all of 1918. Indeed, it was the end of business as usual for the entire Public Health Service.

For Rupert Blue, all peacetime activities—investigations of the pollution of the Ohio River, the scientific studies of the laboratories, the rural health demonstrations, programs against trachoma and hookworm disease—had to become a dim background to the more pressing problems of war. But he first had to get his Service into the war.

Secretary of the Treasury William Gibbs McAdoo, son-in-law of President Wilson, at once put the Executive Order of April 3 into effect as far as he could. Dr. Joseph H. White of the Public Health Service was assigned to duty with the Army. Dr. William Colby Rucker, Dr. Blue's right-hand man, was assigned to duty with the Navy. Medical officers of the Public Health Service already were serving on Coast Guard vessels, now a part of the Navy, and their numbers increased. Congress passed a law entitling them to pensions as provided for officers of Army, Navy and Coast Guard.

Dr. Rupert Blue was ready to turn his highly-trained medical men into health services around the training camps and in the war industries. But no Federal funds were available to pay for the setting up of such sanitary systems and services. It was the American Red Cross that allotted funds to create a Bureau of Sanitary Services. Dr. Wade Hampton Frost, the Public Health Service medical officer who organized the sanitary survey of Ohio River waters, was assigned to Red Cross headquarters in Washington, D.C. There with insufficient funds, he set up this Bureau which he directed from April to November 1917, when he was sent to a sanitarium in Asheville, North Carolina, for incipient tuberculosis. Dr. Taliafero Clark took his place.

As Commissioner of Health of the State of Massachusetts, Dr. Allan J. McLaughlin, on loan from the Public Health Service, took the first action in extra-cantonment sanitation. Already he had worked out an active community-health program for cities in the State of Massachusetts. It included a far cheaper method for the manufacture of salvarsan, the drug he used against syphilis; the giving of free treatments for syphilis and other venereal diseases; sanatoriums for treatment of tuberculosis; campaigns against contagious diseases; use of public health nurses; and both maternal health and school health programs. In May of 1917, Dr. McLaughlin secured from the Massachusetts Legislature, through a special message from the Governor, a fund of \$20,000 for a community sanitation program around Camp Devan. He thus had a pattern prepared



for the rest of the country when sanitary services in all training camp areas would become possible.

Shortly after war was declared, Surgeon General Blue had a bill prepared to create a Reserve Officer Corps in the Public Health Service. The Senate passed it on June 8, 1917, but it did not clear the House of Representatives and become law until October 27, 1918. This hampered recruiting of professional personnel through most of the United States participation in the war. And the Army opposed the Public Health Service taking over sanitation in the cantonment areas.

The military strength of the United States had been at low ebb when World War I broke out in Europe—only 3,441 officers and 77,363 men in the Regular Army; and 8,323 officers, 119,087 men in the Organized Militia, often called the National Guard, whose training was but 24 drills a year including a summer camp. Four million men would have to be mustered before the war was over.

This resulted in a military draft, with the registration by local draft boards on June 5, 1917, of every man between the ages of twenty-one and thirty-one in the United States, a total of some ten million. The draft lotteries started in the Senate Office Building on July 20, Secretary of War Newton D. Baker drawing out the first capsule containing the number of a drafted man. By December 15, more than a half million men had been sent to training camps. Thirty-two cantonments, each with a capacity of from forty to fifty thousand men, had been built in two months time. The sixteen in the South were of tent construction; the sixteen in the North were frame.

For several months this enormous construction job and vast assembly of soldiers went on with no move made by the Army to call in the Public Health Service for sanitation in the communities around the camps.

Dr. Samuel B. Grubbs, one of the seasoned sanitary officers anxious to be about his patriotic duty, put it this way:

"It was hard not to be included in any part of the war work . . . After several months we were called in, not at the request of the Army but because the states where training camps were built could not protect the health of the people in those congested areas."

War had been declared in April. It was not until August that Dr. Grubbs was sent to organize extra-cantonment sanitation in Newport News, Virginia, with orders to stop in Washington.

"There I was told to hurry on and get things going, but there apparently were no plans, precedents or instructions," he said. "'Go talk to the Health Officer of Virginia,' I was told. Authority? 'Only what he will give you.' Money? 'There are no appropriations. The Red Cross will allot you a few thousand dollars to tide over until appropriations can be made.'"

Dr. Grubbs started his work with a donation from the Red Cross—\$21,000 in money, nurses, a doctor or two as needed, and four of the

fifty automobiles which Henry Ford had given the Red Cross. However, with an active citizens' committee and the cooperation of local authorities he soon had an efficient local health organization fighting venereal disease and all the other health hazards of an area where ships were being built, army troop trains were carrying thousands through, and men were being trained at two aviation fields and an artillery school.

Newport News just happened to be one of the places where the Army specifically asked the Public Health Service to turn over to it the extra-cantonment work. The Public Health Service refused.

By a law of October 6, 1917, Congress set up the War Risk Insurance Bureau in the Treasury Department to administer an insurance and health program for the men and women in the armed forces during World War I. This was for the War Risk Insurance Bureau a good position for close cooperation with the Public Health Service, also in the Treasury Department. The Act specifically provided for government medical, surgical and hospital service and for orthopedic appliances to servicemen and women disabled as a result of war-connected injuries and diseases. The disabled in this country, or who returned to it from battle overseas, were cared for in the Marine Hospitals of the United States Public Health Service. If the disability prevented the serviceman or woman from returning to the work that he or she had been doing before the war, re-training was assured through the setting up, under the same law, of a Vocational Education Board.

The War Risk Insurance Bureau contracted with the Public Health Service to provide the disabled with all medical and nursing personnel, out-patient facilities, and out-patient treatment. The Federal Board for Vocational Education similarly contracted with the Service to provide medical consultants for its trainees. The trainees were entitled to complete medical and hospital care for any illness, whether service-connected or not, during the training period.

The Public Health Service set up fourteen districts, each with a medical officer in charge; many sub-districts; a supervisor in each State; hospital inspection service; and clinics.

However, the Public Health Service was still trying to find its full patriotic place in World War I, the most idealistic war ever fought by this or any other country. The fight was not for survival. It was, in the Wilsonian phrase quoted by everyone "to make the world safe for Democracy." However, America was strongly isolationist.

To rally public opinion, President Wilson set up a Committee on Public Information with George Creel, a propaganda genius, in charge. Mark Sullivan, noted newspaperman, listed Creel as one of the three men that Wilson "fought the war mainly through." The other two were Secretary of War Baker, and Bernard Baruch, Chairman of War Industries. In a very short space of time, George Creel rallied the nation to a zenith of patriotic fervor. He was appointed to work under a distinguished

committee—Secretary of State Robert Lansing, Secretary of War Newton D. Baker, and Secretary of the Navy Josephus Daniels. He held only one meeting with them. Operating by himself as the Committee of Public Information, George Creel rallied an estimated 150,000 people to help fight the war.

Creel had the outstanding artists making war posters—Charles Dana Gibson, Howard Chandler Christy, Joseph Pennell, and James Montgomery Flagg. Probably the best remembered of them all was Flagg's Uncle Sam with pointed finger, saying in three successively smaller sizes of type: "I WANT YOU—For U.S. Army—nearest recruiting station."

George Creel had some 75,000 "4 MINUTE MEN 4" a copyrighted trademark, speaking daily in every town motion picture theater and every meeting in every country schoolhouse.

He had the leading novelists and dramatists giving him all their time—Mary Roberts Rinehart, Booth Tarkington, Meredith Nicholson, Samuel Hopkins Adams. And of course he had the newspapers, magazines, motion pictures and theaters helping to promote patriotic zeal.

All this activity eventually was very helpful to Surgeon General Blue and the Public Health Service once its own highly useful mission was established as truly a part of the war effort. But its initial impact appeared to be a heightening of the discontent of the young medical officers who wanted to be fighting men. So many young medical officers registered to get service more closely keyed to war that the Public Health Service had to adopt a definite policy of refusing to accept the resignations of commissioned officers.

George Creel probably did not even know of the situation in the Public Health Service although he had a brother, Dr. Richard H. Creel, in a high Public Health Service position in Washington throughout the war. Dr. Richard Creel served as Assistant Surgeon General in charge of Foreign and Insular Quarantine and Immigration. The Creel brothers visited each other often in a brotherly fashion. They did not talk business to each other.

The war simply served to point up their contemporaneous careers. In his world travels as a medical officer during the latter part of the Wyman administration and the early part of Blue's, Dr. Richard Creel had gained no small reputation in making the world safer from disease-spreading rats. During the last attack of the bubonic plague in San Francisco in 1907–8, Dr. Creel had worked there under Dr. Blue and had lived at the same hotel, the "Little St. Francis" on Union Square. There Dr. Creel had developed the rat-proofing of buildings by lifting them up off the ground, the way farmers did corn-cribs in his native Mid-West. He had gone on to the rat-proofing of ships. And he had drafted the first rat-proofing law with standard requirements while assigned to San Juan, Puerto Rico in 1915. Then Dr. Blue called him to Washington, and



he remained there all the while Dr. Blue was Surgeon-General, conferring with him almost every day.

In November of 1917, the commissioned officers of the Public Health Service themselves took action in an effort to move as a body into the armed services. They appointed five of their members to draw up a memorandum to the Surgeon General asking to be assigned in entirety to the Army and the Navy for the duration of the war. This memorandum was signed by four of these five commissioned officers—Drs. J. C. Perry, H. S. Cumming, Edward Francis, and B. S. Warren.

However, Dr. L. L. Lumsden, who had assisted in the organization of the first county health office in Yakima County, Washington, brought in a conflicting minority report. Dr. Lumsden set forth in fourteen points the philosophy that the Public Health Service could be more effective under the Treasury Department, "in helping our one hundred million people to win the war, in which not only the military forces but the whole nation is engaged."

His final paragraph ran: "If the work of the Health Service as a public health service with its remarkable spirit of teamwork manifested in the fights against insanitary conditions in our vast rural districts were ever needed, that time is now. It seems, therefore, that instead of urging that the Public Health Service in its present capacity is incompetent or even useless, as the resolution adopted by the majority of the Committee appears to me to do, we should endeavor with the assistance of the many forces trying to help us to have the Service strengthened and its efficiency raised to the highest point so we may do well the great war work that is ours to do."

Next the Committee on Medicine and Sanitation of the Advisory Committee of the Council of National Defense in January 1918 took this matter up with Newton D. Baker, Chairman of that council as well as being Secretary of War. This important Committee recommended the transfer of the United States Public Health Service to the Medical Corps of the Army—and asked Secretary Baker to call its memorandum "to the attention of the President for his consideration and action." The physicians who signed the memorandum were outstanding: Victor C. Vaughan, President of the Michigan State Board of Health; A. J. Ochsner, Regent of the American College of Surgeons; W. J. Mayo, President of the American College of Surgeons; Seale Harris, Secretary of the Southern Medical Association; and Arthur T. McCormack, State Health Officer of Kentucky. It had been approved by the Surgeons General of the Army and the Navy.

Secretary Baker took the memorandum to the next Cabinet meeting on January 11, 1918. Secretary of the Treasury McAdoo wasn't there. President Wilson asked Secretary Baker to send the memorandum on to Secretary McAdoo and ask his opinion.

Secretary McAdoo was, in those days, a very busy man. In fact the

multiplicity of his duties during World War I prompted Poet Arthur Guiterman to write:

"The Who, preeminently Who  
Is William Gibbs, the McAdoo.  
(Whom I should like to hail, but daren't,  
As Royal Prince and Heir Apparent.)  
A man of high intrinsic Worth,  
The Greatest Son-In-Law on Earth—  
With all the burdens thence accruing,  
He's always up and McAdooing.  
From Sun to Star and Star to Sun  
His work is never McAdone."

The memorandum sent to him by Secretary Baker stirred him to further action in order to hold the Public Health Service in his Treasury Department.

He quickly obtained an opinion that a transfer of the Public Health Service to the War Department would be illegal. He declared that the extra-cantonment program for the military camps would have to be emphasized and expedited. And on January 14, 1918, he called Dr. Allan J. McLaughlin, who had such a success of the Massachusetts extra-cantonment program at Fort Devan, back into the Public Health Service as Assistant Surgeon General for Interstate Quarantine, in complete charge of health protection in the extra-cantonment areas. And he espoused the fourteen points of dissenter Leslie L. Lumsden.

On February 8, 1918, Secretary McAdoo sent his reply to Secretary Baker. "I have given careful consideration to the question and am firmly of the opinion the change should not be made."

Enough controversy continued to cause President Wilson to issue on July 1, 1918, an Executive Order confining all civil health activities incident to war to the Public Health Service. The broadening of scope of the Service can be seen by the fact that funds appropriated to it by Congress increased from about \$3,000,000 in 1917, to \$50,000,000 in 1918—and the personnel increased from 3,000 to 23,000. But the failure of Congress to enact the Reserve Officers bill resulted in the commissioned officers corps of the service remaining at about 200 officers the whole war through.

July 1, 1918, was the date that Congress approved sanitary funds totalling \$1,000,000 through Public Act 181 of the 65th Congress, freeing the Red Cross from part of its all-too-heavy burden. These funds were "for cooperation with state and municipal health authorities in the prevention of the spread of contagious and infectious diseases in interstate traffic, including the sanitation of areas adjoining military and naval reservations and Government industrial plants, in order to safeguard properly the health of the military forces and Government employees."

To the Red Cross also had fallen the patriotic privilege of paying for

the venereal disease clinics conducted by the Public Health Service in the extra-cantonment areas. The venereal disease burden also was assumed by the Federal Government that same month, through the act of July 9, 1918.

The subject of venereal disease was then kept so completely out of print that this health legislation was officially titled "the Army appropriation bill." It authorized the establishment of a Division of Venereal Disease in the Public Health Service and appropriated \$200,000 for its maintenance. It also appropriated \$1,000,000 for allotment to the States for suppression of venereal diseases; another \$1,000,000 to assist the states in caring for persons detained because of having venereal diseases.

The venereal disease clinics financed by the Red Cross had been started in December 1917. Surgeon General Blue on January 2, 1918, sent a memorandum to each State health officer urging diagnosis, treatment and regular reporting of these diseases. By the time the new law was passed, 10,370 persons had been treated in 25 extra-cantonment areas under the direct supervision of the Public Health Service officer having charge of sanitation in the area. The Red Cross furnished the equipment, laboratory technicians, and nurses. In some instances, it also provided arsphenamine, the drug most used as treatment. The Public Health Service furnished the medical attention necessary.

Under the "Army appropriation act," this service was broadened to become venereal disease control under the joint supervision of the State health departments and the United States Public Health Service. The States had plenty of time to organize while the law was being put through Congress. By the time it was signed, twenty-four States had made definite arrangements with the Federal Government for having an officer of the Public Health Service assume charge of the joint Federal-State venereal disease control program. Other States followed until there were thirty-four by May 1919.

Dr. Claude C. Pierce was put in charge of the new Division of Venereal Diseases of the Public Health Service in July of 1918. He had one commissioned officer and three section chiefs—medical, educational, and law enforcement—as assistants. His office staff included, in addition to routine administrator, clerks, and stenographers, a nurse, an artist, a library assistant, and ten assistant directors of educational work.

The Public Health Service and American Red Cross had been operating twenty-five clinics for the treatment of venereal diseases in extra-cantonment zones. These clinics were taken over by the new program. At the close of the fiscal year of July 1, 1918 to June 30, 1919, 237 free Federal-State clinics for diagnosis and treatment of venereal disease infection had been set up—145 of them having been established during that year. Information to the Public Health Service from 154 of these clinics showed that 56,508 cases of venereal disease had been treated, of which 28,425 were gonorrhea, 25,698 were syphilis, and 2,394 chancroid.



"In order that the spread of venereal diseases through prostitution may be controlled, adequate laws for the suppression of vice must be passed," stated the Public Health Service when submitting to all States whose legislatures were in session during the year 1918-19 a uniform system of model law for venereal disease control. Forty States passed a total of 96 venereal disease laws. In addition, State boards of health reported the passage of 222 city ordinances for the control of venereal disease.

The Venereal Disease Division was in the Public Health Service to stay. But the names of these diseases were still unmentionable in the newspapers.

The malaria control program of World War I was the first large-scale engineering operation for that purpose in the United States. Previous mass-killings of malaria mosquitoes had been only in relatively small demonstration areas and in the Panama Canal Zone. Almost all of the engineers who had been working on the Ohio River project under Dr. Frost were called in to conduct malaria control measures near military camps. The Public Health Service employed in this work approximately 50 sanitary engineers, 100 scientific assistants, 225 sanitary inspectors, 500 foremen, and 3,000 laborers.

From experience gained in the malarial control work of the Panama Canal Zone, the control measures were applied to an area about one mile wide surrounding the military or industrial plant and the city or town adjacent. Work in the Canal Zone had shown that if a strip one mile wide was kept free of malaria mosquitoes, none would be found in the camp.

In this encircling strip one mile wide, swamps, small ponds, wet areas, and outcrops of seepage were drained. Natural watercourses were cleared and, when necessary, regraded. A mixture of kerosene and crude oil was applied at definite intervals to all remaining mosquito-breeding areas, including the shallow parts of large lakes and ponds. Sometimes large-scale engineering operations were required. The results were worth the labor and vigilance.

The Public Health Service report on its World War I campaign against malaria included this passage:

"The results accomplished in antimalarial work in the extra-cantonment zones extending from Massachusetts to Texas and from Louisville, Ky., to Jacksonville, Fla., covering 40 areas in 15 States, have not been the absolute prevention of malaria, but certainly made the problem one of no consequence for the military authorities and for the civilian population within the controlled areas."

A total of 1,227 square miles was under supervision. An average total of 1,140,800 military men were being protected at all times—and so were a total of 3,757,848 of the civilian population.

"Where cantonments were located in notoriously malarious sections

very little malaria has been contracted by enlisted men," the Public Health Service said, "and the malaria sick rate from enlisted men in camp, if from the South, was very much lower than had they stayed at home."

High standards of nursing were promoted by the Public Health Service in the sanitation work near the Army cantonments. Miss Mary E. Lent was appointed supervising nurse of the United States Public Health Service on November 12, 1917. She was directed to inspect the nursing service in all the extra-cantonment areas and to make recommendations for improvement based on what she found.

Examples of her recommendations were:

That the chief nurse in each cantonment area be left free for broad educational work, such as the holding of conferences and addressing civic clubs.

That the public health nurse should not be put on institutional duty in Public Health hospitals for the control of communicable diseases.

That the inspector of school children should be assisted by at least one public health nurse.

That an experienced public health nurse be engaged to follow up reported cases of venereal disease.

A report on the extra-cantonment sanitation work at Camp Wheeler, Macon, Georgia, showed how the nursing system worked in one area—and also showed that the Public Health Service had not lost interest in the mill villages which were brought to national attention in the anti-pellagra campaign.

The text ran:

"The experience of the station tends to show that the nursing staff has done more to control communicable disease than has any other agency under the station. The work of the nurses has included general district nursing, tuberculosis nursing, school nursing, infant welfare, visiting in mill villages, emergency communicable disease control, and venereal disease clinic work.

"During the spring of 1918, smallpox became alarmingly prevalent among the Negro population. The nurses were thrown into the work of vaccinating school children and case contacts, the result of which was the disappearance of this disease in a remarkably short time.

"Assistance has been furnished to the baby welfare league of Macon, and a colored baby welfare league has been organized. Each mill village now has its infant welfare station."

During the fiscal year 1917-18 when World War I was at its height, public health nurses in thirty-one extra-cantonment zones made a total of 201,577 visits. The principal duties of the public health nurses in these areas were to investigate all cases of communicable diseases and to instruct households in how to prevent the spread of these diseases. This included inspections in the schools and personal visits to homes to find out if

school absences were due to communicable diseases; and also "follow-up" checks on venereal disease cases.

Thus it was that during World War I the Public Health Service made the cantonments safe for the soldiers, sailors and marines who were training to fight the Germans in France. These men went overseas as the American Expeditionary Force under General John J. Pershing, who once in the long ago had drilled a medical genius named Howard T. Ricketts, then a student at the University of Nebraska. There they fought in Belleau Wood, at Chateau-Thierry, on the Marne, and in the Meuse-Argonne sector, bloodiest battle of the war, ended only by the Armistice.

During World War I, too, the Public Health Service worked out a lasting system of much closer cooperation with the States in many health campaigns and activities.

The Hygienic Laboratory, which set the standards for smallpox vaccine and diphtheria antitoxin, and which produced all the tetanus antitoxin used in this country, chalked up an outstanding war record.

Long before the United States entered the war, the British Army was relying on tetanus antitoxin made by the Hygienic Laboratory as its previous source of supply had been the German laboratory at Frankfurt on the Marne. Dr. James P. Leake, in charge of the Biologicals, received a citation from the British War Office for guarding the wounded British from tetanus. Later, the Hygienic Laboratory was praised for doing the same thing for the soldiers of this country. A serum to guard against typhoid had been brought to perfection in the Hygienic Laboratory and served as a major safeguard in the First World War.

Dr. Leake told how Hygienic Laboratory "know-how" saved the soldiers of both sides from typhoid in the 1914-1918 conflict.

"Dr. Rosenau, who had been head of the Hygienic Laboratory and went on to teach in Harvard, happened to be in Germany when the war broke out, three years before this country was a combatant," he said. "The German scientists just threw up their hands on an anti-typhoid fever serum. So Rosenau showed them how to make it."

In 1917, Dr. George McCoy and Miss Ida Bengtson demonstrated the presence of tetanus organisms on bone points called "ivory" in the drug trade, which were used to scarify the skin in smallpox vaccinations. Rare cases of tetanus as a complication of vaccination had been occurring for many years. That year there was an outbreak of several cases near Philadelphia. Dr. McCoy and Miss Bengtson made the Laboratory investigations. They found that the supposedly sterile bone points which had been used to vaccinate these cases had come from bones gathered at a slaughterhouse where they might have become infected with tetanus. They had not been sterilized long enough due to the fear of the manufacturers that the steam heat would cause the bones to curl up.

McCoy and Bengtson continued their tests, in one of them using 1500 "ivory" points, with the result that grave doubts were raised as to



whether or not "ivory" points should ever be used in vaccination. Their work resulted in the change of the entire vaccination method. Thus it was that all the soldiers and sailors of World War I were vaccinated by a method in which no tetanus-producing bone points were used.

All the scientific work done by Surgeon John McMullen in trachoma was turned to the purposes of war. In July of 1917, Dr. McMullen issued a warning against the danger of enlisting recruits suffering from trachoma.

"The history of European wars," said Dr. McMullen, "shows that trachoma has been a grave menace to the efficiency of the fighting forces, invaliding thousands of men and blinding large numbers of its victims."

He added, however: "With the proper surgical procedure followed by the after care and treatment, any case of trachoma can be cured."

He advised that any applicant found to be suffering with a well-marked trachoma should not be immediately rejected but should be given treatment and his trachoma cured.

"In this way a case of contagious disease will be eliminated and probably a good soldier gained," he said.

Surgeon General Blue incorporated this advice in his annual report of December 1917. The Surgeon General also offered the use of the trachoma hospitals of the Public Health Service for the treatment of troops.

However, trachoma already had become one of the devices employed for dodging the draft.

Surgeon General Blue noted in his 1918 report that at some cantonments a large number of men suffering with trachoma were promptly discharged to their homes.

"Some of them considered trachoma as a means of gaining exemption from the Army when they did not desire to serve, and therefore refused to receive the proper treatment looking toward its cure," he said.

It was then that the Surgeon General of the Army took official action in line with the recommendations of Dr. McMullen. In January of 1918, he detailed two eye specialists from his office to visit several of the Public Health Service trachoma hospitals for the purpose of observing both the methods of treatment and the results. A list of the instruments used and a detailed description of the surgical procedures and after care treatments were furnished to the Surgeon General of the Army.

The Army then gave instructions to the draft boards to accept cases of trachoma when vision was up to requirements. Arrangements were made for the treatment of trachoma patients. As many of the men who had been rejected for trachoma as possible were treated in the trachoma hospitals of the Public Health Service. As a demonstration, ten soldiers from Camp Taylor were entered for treatment in the Louisville, Kentucky, Marine Hospital. Twenty-three more were later admitted. By June 31, 1918, all but seven had been returned to camp as cured.

Alice Catherine Evans, a bacteriologist trained at Cornell University, worked as a dairy bacteriologist at the Department of Agriculture from 1910 to 1918, when she decided she had to become a real part of the war effort. She went to the Hygienic Laboratory to find out whether she could be of service there. She was told that a position in bacteriology was open under Dr. George W. McCoy. She applied, was accepted, and was transferred to the Public Health Service. Just before she left the Department of Agriculture in April 1918, she published her first paper on brucellosis, a disease causing abortion in cattle. She pointed out that there was a close kinship between this disease and Malta fever, also called undulant fever, in human beings.

In this paper she raised a question which she herself would answer after World War I was over. It was: "Are we sure that cases of glandular disease, or cases of abortion, or possibly diseases of the respiratory tract may not sometimes occur among human subjects in this country as a result of drinking raw cow's milk?"

Her first assignment at the Hygienic Laboratory was with a team of doctors then trying to improve the anti-serum used in the treatment of epidemic meningitis, one of the dread diseases of World War I. In some outbreaks, its fatality rate was more than fifty percent.

The meningitis studies were interrupted by the terrible scourge of World War I, the nationwide death-dealing epidemic of Spanish influenza.

How this epidemic affected the staff of the Hygienic Laboratory, then having a staff of less than a hundred people in a single red brick building in a calm spot overlooking the Potomac River, was told with quiet humor by Miss Evans in her *Memoirs*.

"Some of the medical officers of the Hygienic Laboratory were sent into the field," she said. "Those who remained laid aside their research projects to organize emergency hospitals or to become practicing physicians for sick government workers. Due to the absence of the doctors, and to the illness of many others of the laboratory personnel, only a few were left to carry on."

Miss Evans said that she presumed there may have been a popular demand that the government attempt to find out the cause of epidemic.

"However that may be," she added, "about the middle of the month [October] Dr. McCoy asked me to drop my current problem and turn my attention to the subject of greatest concern.

"At that time bacteriologists were considering whether the influenza bacillus of Pfeiffer, which was found quite consistently in cases of influenza, was or was not the etiologic agent of this disease. In later years it was considered to be a secondary invader.

"My first thought was that I would examine the sputum of patients and tissues taken at autopsy to find the dominating bacterial species. That study would require a special culture medium. As our media-maker was ill, I went to the media room to make it myself.

"Things were not going well, and I knew I was not skillfully undertaking this job of making media to which I had long been unaccustomed. Gradually I realized there was something the matter with me, more than the feeling of helplessness at being assigned unexpectedly to an enormous task. Finally I guessed it. I was coming down with the flu. I put away my utensils and ingredients and went home. A little more than a month later I returned to work.

"It was during those weeks that I was confined to my room that Washington experienced a very serious epidemic. Dr. McCoy became a part-time physician, taking care of the Laboratory's personnel who were ill with uncomplicated influenza, in addition to his administrative work. Dr. Leake took charge of government workers who were seriously ill with pneumonia in temporary hospitals.

"Years later I heard a minister say that during the worst days of those weeks, burial services in Washington cemeteries had to be curtailed in order that each funeral cortege could move along promptly to make room for the next."

The Nation's Capital was indeed one of the places hardest hit by the influenza of World War I, probably the greatest pandemic of all times. The Surgeon General of the Navy detailed forty medical officers to care for the cases in Washington, and an emergency hospital of five hundred beds was set up and operated from October 1918 to March 1919.

The name "Spanish flu" was applied to the disease because some 8,000,000 suffered from it in Spain alone during the summer of 1918. It was not then a reportable disease internationally. Moreover, a war was on. The exact extent of the world-wide epidemics was slow in becoming known. However it was also reported that summer from Switzerland, France and Great Britain.

Early in September it reached this country, starting in New England and spreading down the coast to the Virginia Capes. The Public Health Service printed a pamphlet giving what facts were known about it, and methods which might prevent its spread, and distributed 6,000,000 copies. The Service also put up posters and sent a warning article to 10,000 newspapers. Still influenza swept the country, reaching the epidemic stage in 376 localities. It ravaged more than 20 Army camps and killed half as many soldiers as fell in battle overseas.

The State of Massachusetts, on September 26, 1918, was the first to call on the Public Health Service for help in furnishing doctors and nurses. So many other states quickly joined in this plea that Congress on October 1 voted \$1,000,000 to be available to the next June 30 for combatting "Spanish flu." Dr. Allan J. McLaughlin as Director of Interstate Quarantine in the Public Health Service was placed in charge of its expenditure. It was by no means easy to apportion the scanty supply of doctors and nurses in wartime to the places where they would save the most lives in the civilian population.



The physicians were rallied through State health departments and through an advertisement placed in the American Medical Association Journal. The American Red Cross, already in charge of recruiting nurses for the Army and the Navy, allotted such as could be spared to the civilian population and recruited women volunteers to assist in the stricken localities. Both the Public Health Service and the American Red Cross had a special influenza representative in each State who made daily reports by telegraph to Washington. Scores of communities were organized to meet the epidemic before it struck, including Alaska, to which doctors and nurses were sent on the collier *Brutus*. Emergency hospitals were opened with volunteer nurses. Emergency kitchens were set up.

The Bureau of the Census estimated that the number of deaths of influenza in continental United States in the years 1918 and 1919 was over 500,000. The press estimated that the number of deaths the world over was 6,000,000.

Surgeon General Rupert Blue estimated that 64 of his commissioned officers were on influenza duty, most of them giving their entire time to it. In addition the Public Health Service employed more than a thousand doctors, more than seven hundred nurses and nurses' assistants, and more than three hundred miscellaneous persons "engaged entirely for influenza duty and giving their whole time to the work."

Dr. Blue pointed out that the clerical work necessary in handling such a force was very great indeed, as it all had to be done in such a short time; and that the disbursing and accounting for \$1,000,000 in amounts ranging from \$1 to \$5,000 is no small undertaking and requires considerable personnel.

"Had there been a reserve corps for the Service as had been advocated and passed by the Senate, the work would have been far easier and perhaps better done," said Surgeon General Blue.

"The bill for a reserve was in the House, where it had been for a year with no action having been taken. After influenza had become epidemic over practically the entire country this resolution was brought out of the committee and favorably acted upon by the House. This provided the reserve corps, but it came too late to be of any use in influenza."

President Wilson conferred the first commission in the newly-created Reserve Corps of the Public Health Service, on Assistant Surgeon General Hugh S. Cumming early in December 1918. Dr. Cumming was in New York waiting to sail for Europe on request of the Navy.

Influenza also was made a reportable disease, and the Public Health Service kept it high on the list of diseases to be researched upon and reckoned with.

While hundreds of people were off their jobs in November 1918, convalescing from "Spanish flu," World War I suddenly was over. America held two hysterical celebrations. The first was on November 7, the day of the "False Armistice," so called because Roy Howard of the

*United Press* sent a premature announcement of cessation of hostilities. The people of this country spontaneously and simultaneously swarmed into the streets of the cities, towns and villages to parade, to shriek, whistle, clang and clatter with anything they could find that would make a noise, and to hang the Kaiser in effigy. On November 11, when the Armistice was signed, they joyfully did it all over again.

Three days after the Armistice, William Gibbs McAdoo resigned as Secretary of the Treasury. He said that due to long over-work, he had to have "a reasonable period of genuine rest to replenish my energy." He added that it was necessary to get back to private life "to retrieve my personal fortune."

On December 5, 1918, President Woodrow Wilson, himself a native of Virginia, appointed an outstanding Virginian, Representative Carter Glass, as Secretary of the Treasury—a move that proved ominous for Surgeon General Blue whose term would end before the close of the Wilson administration. Secretary of the Treasury Glass was determined to appoint a Virginian as successor to Blue.

For Surgeon General Rupert Blue any resumption of merely his pre-war activities was impossible. The war-disabled had to be cared for.

On March 3, 1919, Congress passed an act authorizing the Secretary of the Treasury, through the Public Health Service, "to provide hospital and sanatorium facilities for discharged sick and disabled soldiers, sailors, and marines; Army and Navy nurses, male and female; patients of the War Risk Insurance Bureau; and other legal beneficiaries of the Public Health Service."

The law provided a very limited appropriation, \$9,500,000, for this vast task. It specified facilities, most of them inadequate hospitals in old Army camps, which had to be used. It restricted the Public Health Service from acquiring new sites and constructing new facilities.

However, Surgeon General Rupert Blue gave himself the privilege of dreaming a few dreams of future grandeur that month of March 1919, when the Public Health Service took over the care of the disabled veterans of World War I. He drafted an 11-page paper which he titled "Memorandum Relative to the Development of a National and International Program of Public Health." He sent it on March 18 to that veteran consultant of the Public Health Service, Dr. William H. Welch, Professor of Bacteriology and Pathology at Johns Hopkins University in Baltimore, Maryland, who was then on a mission for the American Red Cross in Paris, France. His mission was, in fact, aiding in organizing the League of Red Cross Societies to set up an international health program in the League of Nations.

Quite obviously Dr. Blue envisaged himself as head of the National Health Agency, of Cabinet rank, which he proposed setting up, and of being the United States representative on any international health group which might be formed.

Dr. Blue opened his memorandum with this statement, "The war has already brought out the urgent need for the establishment of national and international health programs." His 4-point program for what he called "the development of a national health post-war program" ran:

1. Centralization in the Public Health Service of all the health functions performed by the Federal Government, and natural growth from a Bureau to a Department of Health.

2. Similar development in the States.

3. Establishment of adequate health administrations which would cooperate, through state health administrations, with the Federal program in all State political subdivisions.

4. General support of this plan of development by unofficial health agencies.

Without even mentioning the fact that his immediate predecessor, Surgeon General Wyman, had absolutely refused to receive the Children's Bureau into the Public Health Service, Dr. Blue decried the development of that Bureau in the Department of Labor "to care for matters pertaining to infant and child hygiene."

"To illustrate the unfortunate tendencies resulting from the splitting up of public health work among several Federal bureaus," said Dr. Blue, "there was recently introduced into Congress and reported favorably, a bill furnishing Federal aid extension for the conservation of maternal and child life in the rural districts of the several States, to be administered by the Children's Bureau as the National health agency, and in States by a new health agency consisting of a State board to be appointed by the governor."

The Surgeon General was outlining the Sheppard-Towner Act, which did become law and made such a fine demonstration of using the Federal grants-in-aid system to lower this country's infant mortality rate that it became a trailblazer for the later Social Security Act to promote the health and welfare of the whole American people.

However, while Surgeon General Blue was drafting his national and international aspirations in Washington, Assistant Surgeon General Hugh S. Cumming, on loan to the Navy, was travelling all over Europe where the international action was. As Dr. Welch became increasingly active in formulating plans for international health, Dr. Cumming in his official duties was spending more and more of his time in the company of Dr. Welch.

Dr. Cumming had visited the ports of England, Scandinavia, and Holland, making various recommendations for quarantine and the return of the troops when his path coincided with that of Dr. Welch at a conference of the League of Red Cross Societies held in Cannes, France, for the purpose of launching an international health program when the peace treaty was signed. Before this conference closed, Dr. Cumming was



asked to sit with the organizing committee of which Dr. Welch was chairman to finally edit the resolutions.

When the conference closed, Dr. Cumming joined Dr. Welch on a tour of historic medical centers in the south of France, which ended in Paris where President Woodrow Wilson then was negotiating the Treaty of Versailles. There Dr. Cumming became a frequent companion of his old friend, also from Virginia, Dr. Cary T. Grayson, personal physician to President Wilson. Thus it was that Dr. Cumming heard President Wilson speak on Memorial Day 1919 in a Paris cemetery, and was one of the crowd at Versailles on the Saturday the peace treaty was signed there.

Dr. Cumming then went to London to discuss disease threats, including a typhus epidemic combined with famine in Poland with the British Ministry of Health. There he saw the Peace Parade with General John J. Pershing and his regiment riding at the head. He returned to Paris on July 20 to meet his wife, Lucy, his 19-year-old son, Hugh, and his 18-year-old daughter, Diana, who had crossed from America on a cattle boat.

On his fiftieth birthday, August 17, 1919, Dr. Cumming arrived in Warsaw, Poland, as head of the Inter-Allied Medical Commission to Poland to report on the typhus situation. The other members of this Commission from the League of Red Cross Societies were G. S. Buchanan, Senior Medical Officer of the British Ministry of Health; A. Castellani, of the Naval Branch of the Italian Medical Service; and F. Visbecq, Chief of Medicine of the French Army.

It was Dr. Cumming who responded to the toast at the luncheon given the Commission by Premier Ignace Paderewski, famed pianist, and his wife, Madame Paderewski.

The Commission travelled around Poland for thirty-one days. As the result, it drafted in September a 19-page report, published as the October 1919 bulletin of the League of Red Cross Societies.

The Commission said that from January 1, 1919, to July 27, that year, 124,620 typhus cases with 9,657 deaths, or 7 percent, were reported in Poland. The Commission urged that the League of Nations send to Poland a representative and a vast amount of medical and other supplies, including even food supplies for the hospitals.

In this report, Dr. Cumming was identified not only as Assistant Surgeon General of the United States Public Health Service, but also as U.S. Delegate to the Office International d'Hygiene Publique, the long-established international health information office with headquarters in Paris.

In November of 1919 in Paris, Dr. Cumming received from a friend some manuscript chapters of a book being written for publication in which allusion was made to a discussion of his own name to succeed Blue as Surgeon General. He was then still deep in discussions of the plan to fit the International Health Office of the League of Red Cross Societies into the League of Nations proposed by the Treaty of Versailles and

awaiting ratification by all the Allies. Sometimes with Lucy, sometimes alone, he was making trips to England, Spain, and Scandinavia to check on pestilences and to further the international health office plan.

When Lucy started motoring with an old friend to her handsome home in Rome, Dr. Cumming met them in Cannes and motored with them to Monte Carlo, and met them again in Rome for the Christmas celebration.

On the last day of the year 1919, they were received by the Pope.

Dr. Cumming then made a sailing trip, inspecting Mediterranean ports. He included Smyrna (now called Izmir), chief seaport of Asia Minor, although he himself noted it was not in Europe and not included under his orders to inspect ports in Europe. He found Smyrna to be the most dangerous Mediterranean port he had visited, infested with small-pox, typhus fever, and plague. He recommended to Surgeon General Blue that quarantine regulations be rigidly enforced on all ships arriving in United States ports from Smyrna.

Returning to Rome from this trip on February 10, 1920, Dr. Cumming was informed by his wife that he had been nominated Surgeon General. She had heard it the night before at a reception at the American Embassy at which she had been asked as to his whereabouts. A cable had arrived for him January 28, directing him to return to Washington. The Chargé d'Affairs had told Mrs. Cumming that the *London Times* had printed the news that her husband had been nominated as Surgeon General by President Wilson. Dr. Cumming arranged his return trip to Washington by way of Geneva, Paris, and London in order to catch up on world news.

After the Public Health Service took over the care of the veterans of World War I, its Hospital Division expanded more than ever before in its long history. To the twenty hospitals long owned and operated by the Service, ten far larger hospitals were added under the Act in the fiscal year ending June 30, 1919. A total of 93,719 patients were treated in the PHS hospitals and relief stations that fiscal year. The immediate directing of the greatly enlarged hospital program was carried by Dr. Claude H. Lavinder, a versatile, experienced career medical officer of the Service.

However, the added hospitals were a chance collection of what happened to be available and of obsolete left-overs politically pushed off on the Federal Government. Mount Alto Hospital at Washington, D.C., had been built as a girls' school. The dilapidated Army base hospital at Jacksonville, Florida, capacity 830, was merely leased and had to be sold before the year was out, its patients and equipment taken elsewhere. The 1,000-bed temporary hospital at Camp Fremont, Palo Alto, California, was located on a sufficiently desirable site that it was permanently rebuilt. The Public Health Service added 500 beds but never completed the purchase of the site.

Army General Hospital No. 32, Chicago, Illinois, which later became the Hines Hospital of the Veterans Bureau, was the target of so much criticism after the Public Health Service took it over that Surgeon General Blue once told a friend it had caused him the loss of the Surgeon Generalcy. However, the political cards were otherwise stacked against the reappointment of Surgeon General Blue.

In September 1919, President Woodrow Wilson suffered a major breakdown during a speaking tour from Washington to the West Coast in behalf of the United States joining the League of Nations, eventually killed by the Senate. For 17 months in the White House Dr. Cary T. Grayson and Edith Bolling Wilson were in constant attendance on the invalid President. Many said they were running the country. Dr. Grayson may have had some influence in the choice of Surgeon General of the Public Health Service.

Secretary of the Treasury Carter Glass, of Virginia, had the right to recommend the next Surgeon General of the Public Health Service who would be appointed by the invalid President. He considered only three Virginians—Dr. Hugh S. Cumming, still on the international health front in Europe; Dr. Leslie L. Lumsden, well-known for his rural health work and author of the minority report against the Public Health Service being absorbed by the Army Medical Service; and Dr. Claude H. Lavinder, then in charge of Veterans hospitals. Secretary Carter Glass picked Cumming. As it turned out, Carter Glass did not even serve out his term as Secretary of the Treasury. He resigned on February 2, 1920, having been appointed by the Governor of Virginia to fill a Senate vacancy caused by a death.

One final bit of fame should be mentioned as probably due to the able administration of Surgeon General Blue. On December 5, 1919, a surprisingly accurate, but at the time highly-controversial estimate, of the number of veterans who would need hospital beds was sent to Congress as House Document No. 481. The name of the Surgeon General was not on it. The signers were W. C. Rucker, Chief Medical Advisor of the Bureau of War Risk Insurance, R. G. Cholmeley-Jones, Director of the Bureau, and Jouett Shouse, Assistant Secretary of the Treasury.

This document stated that beds would be needed for 30,600 patients of the War Risk Insurance Bureau, based on a report of its chief medical adviser, Dr. William C. Rucker, and on "the experience of the Public Health Service since the enactment of the legislation of March 3, 1919." This 30,600 beds required within two years was made up of 7,200 general, medical and surgical beds; 12,400 tuberculosis beds; and 11,000 neuropsychiatric beds. Dr. Rucker was, of course, the Public Health Service officer closest to Dr. Blue from San Francisco days. He was on loan to the War Risk Insurance Bureau. Only Dr. Lavinder could have reported on the post-war experience of the Public Health Service.



Arriving in New York from Europe, Dr. Hugh S. Cumming, designated as Surgeon General, was met by a party which included Dr. Victor Heiser. Although Dr. Cumming had caught up on what had happened in the Public Health Service in Geneva, Paris, and London, he later said of that New York meeting, "Heiser told me for the first time of the complications of the Service and the War Risk Insurance Bureau."

Dr. Blue was sent to Paris, France, to take charge of all Public Health Service operations in Europe. He continued to serve in Public Health Service posts, including a small outbreak of bubonic plague in Los Angeles, California, lasting for about one year in 1924, until his retirement in 1932 on account of age. He died April 12, 1948, in Charleston, South Carolina.



## Chapter 14:

### VETERANS GET OWN BUREAU— HEALTH GOES INTERNATIONAL

Surgeon General Hugh S. Cumming  
1920–1936

#### (Part One)

Dr. Hugh Smith Cumming officially became Surgeon General of the Public Health Service on March 3, 1920. However, he himself recorded: "For sentimental reasons I delayed taking the oath until March 10, which was Hugh's birthday—and thus passed from being one of the many Medical Officers of the Public Health Service to become its responsible chief in a period of chaos both in the world and in this country as well, and in a measure in the Service itself."

He had indeed brought to his difficult task the intensive skills acquired by all of the energetic, experienced medical officers who had weathered years of service under Surgeon General Walter Wyman. Many of them had openly been candidates to succeed Surgeon General Rupert Blue, and were likely to conduct quiet campaigns to succeed Surgeon General Hugh S. Cumming. However, Dr. Cumming, when appointed, had almost a year in which to deal with the chaos he described, and to consolidate his position as Surgeon General, before another President with power of appointment would succeed the ailing Woodrow Wilson.

Dr. Cumming had entered the then Marine Hospital Service on May 25, 1894, and had been assigned to hospital duty at Stapleton, (Staten Island) New York. He was on the staff of the aging Dr. Preston H. Bailhache who had caused much pain to Dr. John S. Billings in the long-gone days of the National Board of Health. Of his early experience on Staten Island, Dr. Cumming recalled:

"Dr. Bailhache, despite his age, was very insistent upon our playing tennis with him every afternoon, and Saturday night, duplicate whist, which was then the vogue."

Dr. Cumming was tall, slim, distinguished looking, courtly in manner. One glance, and any observer could catalog him as a Virginia gentleman. He was born in Hampton, Virginia, August 17, 1869. He was graduated from the Medical School of the University of Virginia at Charlottesville in 1891. While an intern in a hospital at Richmond, he took additional courses at the Medical College of Virginia in that city, from which he received a second M.D. degree in 1893.

As a Public Health Service medical officer, he was assigned to temporary duty in Norfolk, Virginia, in 1896, and on October 28 of that year





Courtesy National Library of Medicine, PHS

Surgeon General Hugh S. Cumming, who served in this post under five Presidents—Wilson, Harding, Coolidge, Hoover, and Franklin D. Roosevelt.

married Miss Lucy Booth, of Carter's Grove, Virginia. She was an able aide to him, socially, intellectually, and politically.

Dr. Cumming was assigned to Philadelphia where their first baby, Lucy Booth, was born October 4, 1897. This baby had a congenital heart disease from which she died on November 27, 1898. That year Dr. Cumming worked with the Immigration Service in New York, later becoming a member of the first class organized by the Hygienic Laboratory, then

in an attic of the Butler Building, to study laboratory methods under Dr. Joseph J. Kinyoun who had just returned from studying under Louis Pasteur in Paris, France, and Robert Koch in Berlin, Germany.

In June of the next year, 1899, Dr. Cumming was delegated to take over from Dr. Taliaferro Clark as head of the South Atlantic Quarantine Station on Blackbeard Island, Sapelo Sound, off the coast of Georgia. The postoffice address was Inverness, Georgia, its telegraphic address, Darien, Georgia, where its telephone service, often out of order, was installed. His struggles on Blackbeard Island, a classic example of the daily lives of Public Health Service medical officers of that time, are recorded in his own handwriting in an old brown logbook now in the possession of the National Library of Medicine, Bethesda, Maryland.

When he had to take two "very suspicious" fever cases off the *S. S. Apex* from San Francisco, he had to isolate them in a hospital which, he said, "was totally unprepared for any use."

He spent his time between ship inspections supervising the repair of everything on the island. Among the many improvements he made was moving the house assigned as quarters for his family to a better site on the island, and putting sidewalks and landscaping around it. No holiday was really time off. He spent the Fourth of July putting the *Bark Hassel-nodder* from Parahiba, Brazil, in quarantine. He returned to the station to find his only assistant physician had jumped from a stranded vessel and sprained his ankle. On another occasion, he was accidentally shot in the leg by one of the station attendants. His assistant surgeon cut a slug the size of a dime, with jagged edges, "from beneath the muscles about the origin of Tendon Achilles after one hour's work."

During the March 11 to October 31 season of active quarantine in the year 1899, Dr. Cumming and his predecessor, Dr. Clark, disinfected 16 vessels at Blackbeard Island. They tallied 23 cases of yellow fever on three different ships. Eight of the victims died. The rest recovered. Five of them were treated at the Quarantine Station.

Dr. Cumming had to suspend his hospital steward, who promptly preferred formal charges against him. These charges were officially termed trivial, and the man was discharged from the Service.

On January 27, 1900, Dr. Cumming wrote: "Started to Pier, but a heavy northeastern rain turned me back—With no other officer here, cannot afford to get sicker than I am now." But there were many cheerful notations too. "Inspection of pier shows wonderful improvement," one entry read.

Each fall Georgia businessmen came to the island to hunt deer. For Dr. Cumming the wild deer on the island served a practical purpose. A September 2, 1900, entry read: "Meat is out. Killed two bucks. Returned in time for inspection." High officials of the Public Health Service sometimes saved a few days of annual leave to combine deer hunting with the annual inspection of the South Atlantic Quarantine Station.

Visitors appeared with old drawings which told where the treasure of the famous pirate Blackbeard was buried.

The notation on June 2, 1901, ran: "Born at 2 a.m., this instant, to Passed Assistant Surgeon and Mrs. Hugh S. Cumming, a daughter." This was their second daughter, Diana. Their son Hugh, Jr., had been born while they were on leave in Richmond, Virginia, on March 10, 1900.

In September of 1901, while on the pier superintending repairs, Dr. Cumming was attacked by appendicitis. He was given sick leave for thirty days to go North and have an operation performed. He never returned to his post at Blackbeard Island. Surgeon General Wyman sent him on to San Francisco to take charge of the Angel Island Quarantine Station when the plague controversy brought on by Dr. Kinyoun was still raging.

From five years in San Francisco, Dr. Cumming went on to four years in Yokohama, Japan, where he became familiar with Oriental diseases. Such was the apprenticeship of the post-war Surgeon General of the Public Health Service.

Surgeon General Cumming promoted his fellow Virginian and former classmate at the University of Virginia Dr. Claude H. Lavinder, to the post of Assistant Surgeon General in Charge of Marine Hospitals and Relief. By this time, it was being called simply "Hospital Division" because its twenty-odd Marine Hospitals were such a small part of the activities of its more than fifty hospitals.

Dr. Lavinder then became the spokesman in long hearings held by Senate and House on the nation's need of beds for veterans. The figures that he gave as to the cost of a program of hospital care for the discharged veterans of World War I were so astronomical that some members of Congress thought they were ridiculous. But Congress as a whole was about to realize that providing of hospital care for the discharged men of that war was going to be a very expensive and long-drawn-out effort.

There was not room in the Butler Building to hold the headquarters of the vast hospital program for veterans. Three times the central office for the care of veterans had moved to larger quarters, the third move being to one of the temporary buildings which had arisen on the Mall during the war, at Seventh and B Streets, S.W. Surgeon General Cumming divided each of his working days between the Butler Building and the temporary building on the Mall. There fourteen different veterans' service sections—executive, personnel, financial, reconstruction of the disabled, statistical, district supervision, dental, laboratory and X-ray, neuropsychiatric, tuberculosis, nursing, dietetic, construction, and out-patient relief—served fourteen geographic districts.

Each district had its own headquarters—at Boston, New York City, Philadelphia, Washington, Atlanta, New Orleans, Cincinnati, Chicago, St. Louis, Minneapolis, Denver, San Francisco, Seattle, and Dallas.



Over in Europe, the most important task of former Surgeon General Rupert Blue was to enforce the delousing of all emigrants and ex-servicemen, and all their clothing and bedding, bound for the United States. This was particularly to guard against typhus fever. Dr. Blue was also to secure vaccination against smallpox and protection from other communicable diseases. Because some of the steamship agents showed lack of appreciation for the need of an elaborate delousing process, Dr. Blue called a conference on delousing in Paris, France, on February 17, 1921, which was attended by the representatives of thirteen steamship lines.

Surgeon General Hugh S. Cumming had by no means lost his interest in an international health organization. He felt that this country had been placed in a peculiar position because of its failure to become a member of the League of Nations and thus of the League's Health Section. Many of the officials of other nations with whom he had worked while abroad were leaders. Lord Astor, with whom he had conferred in London, was one of the organizers. Dr. Ludwig Rajchman, with whom Dr. Cumming had worked on the Polish typhus problem, was for many years its Medical Director. Dr. Cumming continued his correspondence with these men on control of epidemics through international organization.

On the home front, the Public Health Service, under Surgeon General Cumming, was becoming a leading factor in the application of epidemiology as a practical science in this country. The two outstanding figures in this work were Dr. Wade Hampton Frost, who planned epidemic control on a grand scale and was an expert on stream pollution; and Dr. L. L. Lumsden, self-styled shoe leather epidemiologist, developer of county health work, artful lobbyist in this cause in Washington, D.C., and promoter of the proper disposal of human wastes in rural areas. Both of these men had taken part in the pioneer investigation looking toward eradication of typhoid fever in Washington, D.C., and centering on the milk supply and the water in the Potomac River. They were friends and contemporary pioneers in broad-scale fighting of disease.

Now the country had learned to look to the Public Health Service for leadership in controlling epidemics, and in building up local health work. It was evident that this had become a subject to be taught in schools of public health. In the autumn of 1919, Johns Hopkins University, Baltimore, Maryland, had established the first School of Hygiene and Public Health in the United States with Dr. William H. Welch, that seasoned consultant of the Public Health Service, at its head. He persuaded Dr. Rupert Blue, then Surgeon General, to detail Dr. Wade Hampton Frost as Resident Lecturer in Epidemiology, as a preliminary to becoming the first in the world to hold a university chair of epidemiology.

Dr. Frost went on to higher and higher posts in the School of Hygiene. However, he continued as head of the Public Health Service water pollution studies re-established in Cincinnati, Ohio, with sanitary engi-

neers in immediate charge of its various investigations.

The second great pioneer epidemiologist of the Public Health Service, Dr. Leslie L. Lumsden, continued on his well-blazed path through the States, taking health to the people through his "rural sanitation" campaigns. He had been able to get Congress to appropriate Federal funds annually for cooperative demonstration rural health projects in a number of States. In the year 1919, the Public Health Service had asked \$500,000 to carry on this well-established work, which had been conducted largely in the areas around the Army camps during the war—and received only \$50,000. This money was made available about the middle of July 1919. By the time Dr. Cumming took over as Surgeon General, Dr. Lumsden had cooperative projects in progress in 31 counties of 11 States, with an annual expenditure of more than \$175,000, provided by State and local governments and more than \$50,000 from citizen sources.

From nearby Baltimore, Maryland, Dr. Frost continued to collaborate with Edgar Sydenstricker, the Public Health Service statistician who had assisted him in making studies of the great influenza epidemic of 1918 and later outbreaks. Sydenstricker's statistical studies, especially surveys in Maryland made with the cooperation of both the Johns Hopkins University and the Rockefeller Foundation, won recognition as trailblazers for needed data to plan for improving public health. The 1921 *Annual Report* of the Public Health Service told of the establishment by Surgeon General Cumming of a special Statistical Office under Sydenstricker.

The Statistical Office had three announced purposes: (1) To provide a central plant for the tabulation of material collected in previous studies of disease prevalence. (2) To furnish the technical advice required in planning and analyzing statistical work. (3) To conduct statistical studies "independently but closely coordinated with other field and epidemiological studies carried on by the Public Health Service."

Surgeon General Cumming made in this *Annual Report* the following significant statement: "The statistical office has been put under the charge of statistician Edgar Sydenstricker, with Professor Raymond Pearl, head of the department of biometry and vital statistics, School of Public Health, Johns Hopkins University, and Dr. W. I. King, statistician and economist of the research staff, National Bureau of Economic Research, as consultants in epidemiology and statistics.

"A force varying from 5 to 15 clerks has been employed during the year, and mechanical equipment has been provided, consisting of counting, sorting, tabulating, card-punching, computing, calculating, and graphing machines and devices.

"In addition to this personnel, there have been either detailed to, or working in close cooperation with this office on statistical phases of various studies assistant statisticians from the Office of Industrial Hygiene and Sanitation, the Office of Child Hygiene, and the Office of Field

Investigation on pellagra, and a varying number of clerical workers from these offices and from the Division of Venereal Diseases. The organization of the entire personnel is such that it functions more or less as a single unit, according to the immediate demands of the work in progress."

Mr. Sydenstricker and his able and variable staff neatly tallied up all records of communicable diseases which they had found in the Public Health Service files. They published their findings in a series of articles in *Public Health Reports*. All health statistics were also compiled and published as to States, large cities, small cities, and foreign countries. This brought the Public Health Service up-to-date, statistically, on all its past efforts against particular diseases, and diseases in general.

To get at the actual incidence of disabling illness in adults and children, Sydenstricker conducted morbidity studies. On this, he said: "Through cooperation of a considerable number of industrial establishments reports of the occurrence of disabling sickness with diagnosis for each case are made available for current compilation and analysis. This covers a large adult wage-earning population. In cooperating with field investigations of child hygiene, an attempt is being made to utilize the school records as records of disability and disease incidence among school children."

In Maryland, Frost and Sydenstricker carefully picked typical population groups which Sydenstricker later used over and over again for general population studies. These were Baltimore, a large city; Cumberland, a small city; Frederick, then a town of over 10,000; Salisbury, then about half as large as Frederick; Lonaconing, a town of about 1,500; and three rural districts in Frederick, Washington, and Wicomico counties. Hagerstown, Maryland, which became Sydenstricker's "guinea pig" in intensive studies on the cost of medical care, is in Washington County.

Because of the fight against venereal disease in World War I, it was still a much-discussed subject in 1921. In that year 27 States showed a decline in incidence as against 19 showing increase in the patients of venereal disease clinics operating under the Federal-State program started during the War. Congress cut the appropriation for Federal aid to these clinics from \$1,000,000 in 1920, to \$546,345.30 in 1921, and eliminated Federal aid altogether in 1922.

Nevertheless, the responsibility of the Public Health Service for supervising the control of venereal disease continued and broadened. In February of 1920, the Public Health Service in cooperation with the American Red Cross had set up in New York a Seamen's Service Center. Its purpose was announced as "to act as a clearing house through which sick, disabled, and needy sailors of the merchant fleets of the world may be distributed to cooperating social agencies or individuals for detailed help, and, for proper care and treatment." In a few months, the Public Health Service took over the entire management of the Center.

During the first year, a total of 11,611 seamen applied to this Center



for help. Intensive service was required for 5,894 of them. Included were 3,194 medical examinations; jobs found for 2,370; material relief given 593; legal aid to 841. A total of 1,283 cases of actively infective venereal diseases were found—492 of syphilis, 656 of gonorrhea, and 135 chancroid.

The Center focused attention on the plight of alien seamen. On December 26, 1920, Congress passed a law providing for the treatment at the expense of the vessel of alien seamen afflicted with any of the diseases excluded under the 1917 immigration act. These cases, including insanity, epilepsy, tuberculosis or loathsome or dangerous contagious diseases were referred to hospitals by the Public Health Service officers performing the medical examinations of aliens.

In order to better coordinate the work of the various social agencies assisting in the relief of seamen ashore, Surgeon General Cumming suggested a conference of these agencies in Washington, D.C. This conference was held with representatives of 75 different agencies present on February 25, 1921. There a permanent conference was set up and seamen's service centers were organized in other ports.

On March 4, 1921, President Woodrow Wilson, a Democrat, was succeeded by President Warren Gamaliel Harding, a Republican. Surgeon General Hugh S. Cumming, a Democrat, was told of comments from persons in high places that he would be replaced by a Republican. Instead, he continued to work cooperatively with President Harding whose sister, Mrs. Heber Votaw, already was on the Public Health Service staff. She worked in the Industrial Division headed by Dr. Lewis R. Thompson. One of the studies she made was on the absenteeism of young women in the public services.

In the prevention of the introduction of epidemics from foreign countries and in keeping them from crossing State lines, the Public Health Service already was administering the entire foreign and interstate quarantine services. The National quarantine system was legally completed in the year 1921 when both New York and Baltimore sold to the Federal Government their maritime quarantine stations. Upon Surgeon General Cumming would fall the task of working out a quarantine system for airplanes coming in from foreign lands.

Surgeon General Cumming was pleased indeed when he was directed by President Harding in 1921 to accept an invitation he had received to become a member, in an advisory and consultative capacity, of the Health Section of the League of Nations. At first the arrangement was informal, but after 1923 it was conducted through the formalization of the relation between the Health Section of the League with headquarters in Geneva, Switzerland, and the Office International d' Hygiène Publique, founded in 1907 with headquarters in Paris, France, of which Dr. Cumming already was a member.

France, with the backing of the United States, had refused to let the OIHP be absorbed by the Health Section of the League, as originally

had been envisaged when the League was set up under the Treaty of Versailles. In 1923, an elaborate arrangement was set up whereby the Permanent Committee of the OIHP became the General Advisory Health Council of the League of Nations Health Organization. This Health Council could have questions referred to it by the standing Health Committee of the League and could transmit questions to that committee. The Health Committee of the League, which consisted of twenty members appointed partly by the Permanent Committee of OIHP and partly by the Council of the League, directed the health work of the League and was responsible for the technical work of the Health Section. While this arrangement was presented as for the purpose of preventing friction between the new international health organization in Geneva, and the older one in Paris, it obviously was for the primary purpose of permitting the United States in the person of Surgeon General Hugh S. Cumming to function in the Health Section of the League of Nations while not belonging to the League. Surgeon General Cumming helped in the early planning of this arrangement.

That year of 1923, Surgeon General Cumming granted to Edgar Sydenstricker a leave of absence of one year from directing the statistical work of the Public Health Service to organize and direct the epidemiological intelligence service of the Health Section of the League of Nations at Geneva, Switzerland. The initiation of this work was made possible by a grant from the Rockefeller Foundation. It furthered tremendously the accomplishment of the Health Section of the League of Nations against epidemic diseases.

Surgeon General Hugh S. Cumming also served as host to leaders of the League of Nations Health Section who visited this country.

Large delegations from the League, and at one time the entire Health Section, came to Washington, D.C., to visit the Public Health Service in general, and its spectacular research center, the Hygienic Laboratory at Twenty-fifth and E Streets, N.W., in particular. Foreign medical experts from all over the world came to the Hygienic Laboratory for special studies. Some were sent by their governments to learn the United States' methods of standardizing biological products and its discoveries about diseases. Others were assigned by the Rockefeller Foundation in its international fellowship program. It was, indeed, the research show-place of the Public Health Service to the medical men of the world. A tunnel was constructed in the year 1921 between the North and the newer South Building of the Laboratory giving access from one building to the other in all weathers.

There, Dr. George W. McCoy, Director, took a scientific interest in all problems and people entering either building or crossing from one to the other by sidewalk or by tunnel. When subjects were of particular interest to him, he went out on investigations of his own. He made long trips to Europe on international disease problems. He frequently inspected

plants of the manufacturers of biological products whose products were sold in interstate commerce.

President Warren Gamaliel Harding had been in office only a little more than a month when events started stirring which eventually ended Public Health Service care of war veterans, carried on in cooperation with the War Risk Insurance Bureau, also in the Treasury Department.

President Harding had appointed as Director of the War Risk Insurance Bureau on April 28, 1921, Colonel Charles R. Forbes, a man whom he had chanced to meet on a vacation in Honolulu, Hawaii. Newspaperman Mark Sullivan described this new friend of the then Senator and Mrs. Harding as "the breezy, joke-cracking, hustling, red-headed Forbes." Sullivan further said: "He was of a familiar American type, the go-getter. He had a kind of genius for the sort of enterprise, compounded of animal energy and shrewd workaday knowledge of applied psychology, which a decade later came to be known as 'muscling in.' Forbes was a superb 'muscler-in.' To his skill at that art he owed his lone-handed capture of one of the best jobs Harding had to bestow."

Having obtained a lush appointment as head of the War Risk Insurance Bureau in the Treasury Department, Forbes set about to make it even better by building it into the Veterans Bureau, divested of any connection with the Treasury Department which had as its Secretary the canny Andrew Mellon. In so doing, he took complete charge of the Public Health Service system which was providing 80 percent of the medical care furnished to ex-servicemen and women. This included taking over all the Public Health Service veteran's hospitals and all of the elaborate, 14-district Public Health Service organization for dealing with veterans. He further took over the vocational training of veterans performed by the Vocational Education Bureau under the War Risk Insurance Act.

Colonel Forbes accomplished this governmental transformation by adroitly riding the wave of discontent of the fast-growing veterans' organizations. These groups wanted a larger voice in the conduct of veterans' affairs, and lobbied Congress constantly to get it. One of the first official acts of President Harding was on veterans' affairs.

Before President Harding had announced the appointment of Colonel Forbes, he had called together a special committee to consider the entire veterans' problem. This committee held public sessions, at which all interested persons were invited to express their opinions. The committee made a formal recommendation to the President for a new administrative program to consolidate in one organization the entire responsibility for the care of the veterans of the World War.

In compliance with this recommendation, Secretary of the Treasury Mellon issued on April 19, 1921, nine days before the Forbes appointment was announced—an order which placed upon the War Risk Insurance Bureau the administrative responsibility which had been discharged by the Hospital Division of the Public Health Service through its fourteen



district supervisors. This order also transferred to the War Risk Insurance Bureau the responsibility for making the medical examinations for disability ratings and the payment of compensation. This left the Public Health Service with responsibility for only the medical care and treatment of veterans, either in hospitals or through dispensaries.

Even this was to be taken from them through a bill introduced in Congress by Representative Burton Erwin Sweet, of Iowa, chairman of the subcommittee of the Interstate and Foreign Commerce Committee which would conduct the House hearings on it, to set up a separate Veterans' Bureau.

As introduced by Representative Sweet, the bill would have established the Veterans' Bureau in the Treasury Department, where the War Risk Insurance Bureau, which it would succeed, was located. However, when the bill came before the Senate committee on health in July of 1921, Colonel Forbes, Director of the War Risk Insurance Bureau, made the most of an opportunity offered him to secure greater independence. The Colonel's testimony was a striking example of the trait Mark Sullivan termed "muscling-in."

At one point Colonel Forbes was testifying that the Public Health Service sent the veterans to dentists and paid the dentists what they charged—and that the dental bills were as big as \$300 per person.

"Why can not all that work be done in the hospitals?" asked Senator James A. Reed, of Missouri.

"The Sweet Bill will give me that authority," smugly replied Colonel Forbes.

Again, Director Forbes told of having to clear decisions through top officials of the Treasury Department.

"Why not report directly to the President of the United States?" asked Senator Reed Smoot, of Utah, who had been hostile to the Public Health Service for many years.

"Going through the Secretary of the Treasury does not amount to anything," commented Senator David I. Walsh, of Massachusetts.

Immediately, Director Forbes went into a detailed dissertation on having to send letters from members of Congress back and forth with the Secretary of the Treasury and an Assistant Secretary of the Treasury commenting, "and there is a great duplication of work."

"I want to wipe out all the 'red tape' possible," said Senator Smoot.

"Congressmen have written 2½ million letters to us," said Director Forbes. His implication was that obviously he should not have to show them to the Secretary of the Treasury.

Under the Sweet Act, signed August 9, 1921, the Veterans' Bureau was set up as an independent agency, reporting directly to President Harding. The President signed an executive order effective as of May 1, 1922, transferring all veterans' hospitals and out-patient dispensaries which had been opened by the Public Health Service to the Veterans'

Bureau. This transfer was accomplished on April 29, 1922, a record for promptness, being two days in advance of the deadline set by the executive order.

Transferred on that day were: 57 hospitals, 13,000 patients, 17,000 beds, 900 physicians and dentists, and 1,400 nurses. Nine additional hospitals under construction were to be transferred when completed. Remaining in the Public Health Service under supervision of Dr. Lavinder were only 24 Marine Hospitals with about 3,000 beds.

As Director of the Veterans' Bureau, Colonel Forbes, with ample appropriations from Congress, embarked upon a large-scale program of conducting veterans' hospitals. This program ran counter to the thinking of Brigadier General Charles Elmer Sawyer, Mrs. Harding's personal physician, who was brought from Marion, Ohio, into the White House household of the Hardings. Dr. Sawyer, who was on active duty as a Brigadier General in the Medical Reserve of the U.S. Army, apparently was determined that all disabled veterans should be housed in old cantonment buildings and Army barracks. Administrator Forbes visited all of these cantonment buildings which had been operated as hospitals under the Public Health Service and pronounced them all fire-traps.

Dr. Sawyer kept a close check on the hospital construction program of Forbes and finally found proof that Forbes had corrupt financial relations with the contractors to whom he let out the building program, and with others to whom he was selling surplus war supplies.

Surgeon General Cumming recorded that he personally furnished General Sawyer with the proofs necessary to unmask Forbes to the President and Mrs. Harding. Dr. Cumming had been told by an Assistant Surgeon General that an enormous amount of so-called "surplus supplies" had been taken from the warehouse which had been jointly operated by the Public Health Service and War Risk Insurance Service "and were being sold for almost nothing by Colonel Charles Forbes."

"Knowing his intimacy at the White House, I felt that I was rather 'sticking my neck out' in reporting the incident, but concluded it was my duty to do so and reported the matter to the White House Physician, General Sawyer," said Dr. Cumming. This was routine reporting through channels since the Surgeons General of the Army, Navy, and Public Health Service were instructed to report regularly to General Sawyer, sometimes together and in person.

"The next morning he called me up and invited me to breakfast at the White House," Dr. Cumming continued. "We drove down to Perryville, Maryland, finding a train being loaded with perfectly good supplies. We placed samples of many of these in the car to show President and Mrs. Harding. I have heard of stormy scenes which ensued, but I do know that not long afterward Colonel Forbes sailed for Europe and his successor, General Frank Hines, was appointed."

Several authors have stated that Dr. Sawyer personally warned Presi-

dent Harding. However, Mark Sullivan is authority that Dr. Sawyer took his information against Director Forbes to Attorney General Harry S. Daugherty with the request that Daugherty convince the President of the perfidy of his red-headed friend. President Harding was reluctantly convinced. The President arranged that Director Forbes should go abroad, and while there resign. This he did on February 15, 1923. After President Harding died, Colonel Forbes was prosecuted and was sent to prison. His sentence was somewhat shortened for good behavior.

Early in the year 1921, the National Leprosarium became a reality. All through World War I the Public Health Service had carried on a search for a site which would be more suitable for the treatment of leprosy patients than Carville, Louisiana. The chief complaints against it were that it was too far removed from any great medical center, and that its tropical climate was not conducive to arresting the disease. Massachusetts did not want the National Leprosarium, and neither did West Virginia. It was ruled out for any of the several old military stations on Angel Island where the Public Health Service already had a Quarantine base. Dr. George W. McCoy, the outstanding authority on leprosy in the Public Health Service, was put in charge of a committee to choose a site. He chose an island near Florida, but was met by the usual resistance.

At last the committee recommended taking over the Louisiana State leprosarium as the National Leprosarium, a course that was highly favored both by Senator Ransdell, of Louisiana, and by Dr. Isadore Dyer, dean of the medical school of Tulane University at New Orleans. On January 3, 1921, the transfer from State to Federal Government was made for a consideration of \$35,000. Congress made available for alterations and repairs the appropriation of \$250,000, which was included in the 1917 law for the establishment of a National Leprosarium.

The State of Louisiana had built a high fence between the quarters of the men and women patients at Carville. Across this fence stood a tall tower which the patients on either side could climb to look over the levee at the Mississippi River. The men and the women took turns climbing the tower, at appointed hours, to look at the river. Now the fence was taken down forever. But the old river-viewing tower still stands as a landmark at the Leprosarium.

Dr. Oswald E. Denney, a well-known Public Health Service leprologist, was brought back from the Philippine Islands to become the Medical Officer in Charge at Carville. The agreement with the Daughters of Charity of St. Vincent de Paul, which now had been in effect more than a quarter of a century, was not broken. Dr. Denney took over six of these Sisters as nurses, along with the ninety patients turned over by the State of Louisiana to the United States Government. The nuns all received Civil Service ratings as nurses in the Public Health Service, and were put on the Federal payroll at nurses' salaries which they turned over to





Courtesy National Library of Medicine, PHS

The long-established Louisiana leprosarium at Carville, Louisiana, which was purchased by the Public Health Service in 1921. This has always been an administration building.

the Mother House of their nursing order. Under Federal management, the numbers of both patients and nurses increased rather rapidly.

In his 1921 *Annual Report*, Surgeon General Cumming said of Carville: "The station is essentially a 'home' and not a hospital, there being no facilities available for the proper hospitalization of patients. It is planned to convert this institution into a National Leper Home capable of accommodatng 500 lepers. Its present capacity is 120 beds, 116 of which are occupied."

The National Leprosarium went into Government records as United States Public Health Service Hospital No. 66. Louisiana and three other States with high leprosy rates, Texas, Florida, and California, continued to send to it the majority of its patients. Patients also were sent from States throughout the United States. Dr. George W. McCoy, the Director of the Hygienic Laboratory, continued to take a special interest in the disease and in Carville. Often he was called on to make the final diagnosis of suspected leprosy cases in the eastern part of the United States. Sometimes he took charge of cases in transit to Carville, and even accompanied them there.

A note in the Hygienic Laboratory log during the early 1920's indicated that Dr. McCoy kept in his office, in strictest seclusion, two victims of leprosy being sent from Norfolk, Virginia, to the National Leprosarium at Carville, Louisiana. Dr. McCoy met them at the boat, took them by automobile to the Laboratory, and had their meals sent in on trays from the nearby Naval Hospital.



Courtesy National Library of Medicine, PHS

A view of the Public Health Service hospital for victims of Hansen's Disease at Carville, Louisiana.

In 1923 Congress appropriated \$645,000 for modernizing the Carville Hospital, building enough new wooden cottages to take care of 425 patients. Laboratory and hospital facilities, including a surgery, were also constructed.

The warning which Surgeon General Blue had written to Dr. Welch that Julia Lathrop, chief of the Children's Bureau, would secure from Congress a Maternity and Infancy Act came true on November 19, 1921. That day President Harding signed the Sheppard-Towner Act which provided Federal grants to establish State centers to teach prenatal and infant care to mothers. This Act channeled into human welfare the same grants-in-aid device that was being used to promote the building of roads. Included in the Act was a five-year limit on the authorization of the appropriation. It was extended by Congress to continue for seven years, expiring on June 30, 1929.

Created under this Act was a Federal Board of Maternity and Infant Hygiene, composed of the Chief of the Children's Bureau, the Surgeon General of the Public Health Service, and the Commissioner of Education to approve or disapprove of State plans for the use of the funds. Thus

Surgeon General Hugh S. Cumming was closely concerned with the operation of this law during the entire time it was administered by the Chief of the Children's Bureau, at first Julia Lathrop and later Grace Abbott. Moreover, in all of the 45 States cooperating under the Sheppard-Towner Act between 1921 and 1929, with the exception of four, the administration was lodged in the State department of health. Thus the Maternity and Infancy Act inevitably became a matter of competition between the Public Health Service and the Children's Bureau. Surgeon General Cumming, conservative in many of his opinions, did not favor Federal grants for State health programs. If Congress insisted on setting them up, the Surgeon General thought they should be administered by the Public Health Service.

In many States, bitter political battles preceded acceptance of Federal aid for maternal and infant care. Adopted only the year after the success of the Women's Suffrage Amendment, the Sheppard-Towner Act was widely regarded as the outcome of according the vote to women. The strong support of the National League of Women Voters and other women's organizations added credence to that theory. The defeated anti-suffragists rallied in many States to try to defeat acceptance of the Sheppard-Towner Act.

Surgeon General Cumming had inherited the seasoned staff of Surgeon General Blue. In the year 1922, he reorganized his staff. He first issued an order that all medical officers who had served for more than four years in Washington must go elsewhere. Insofar as possible, they were given their choice of stations.

During the fiscal year of 1922-1923, Surgeon General Cumming divided continental United States into seven Public Health Districts which he then reduced to six in 1924. Each District included several States to which was assigned a particularly experienced medical officer of the Public Health Service as Director. Obviously, this was intended to provide for closer contacts with State and local public health officers and to assure better inspection and supervision of Public Health Service activities throughout the country. Incidentally, it provided transfers for several Assistant Surgeons General who reverted to their regular grades.

The experienced officers first assigned as District Directors were:

Dr. Allan J. McLaughlin, on Dr. Cumming's staff as Assistant Surgeon General in charge of the Division of Domestic (Interstate) Quarantine, to headquarters in New York City.

Dr. Benjamin S. Warren, Assistant Surgeon General in charge of the Division of Sanitary Reports and Statistics, to headquarters in Baltimore, Maryland.

Dr. Claude C. Pierce, Assistant Surgeon General in charge of the Division of Venereal Diseases, to headquarters in Chicago, Illinois.

Dr. Richard H. Creel, Assistant Surgeon General in charge of the Division of Foreign and Insular Quarantine and Immigration, to take



charge of the Quarantine Station at Angel Island, San Francisco, California, a former post of Surgeon General Cumming.

In his 1924 *Annual Report*, Surgeon General Cumming said: "Viewed as a whole, the work of the district medical directors has resulted in increasing the efficiency of the Service operations and in material saving in expenditures."

In addition, Dr. Joseph W. Schereschewsky, Assistant Surgeon General in charge of the Division of Scientific Research, was sent to Harvard University, Boston, Massachusetts, to take charge of cancer research. Thus was started a Public Health Service specialty which eventually would develop into the first of the National Institutes of Health in Bethesda, Maryland.

In August 1922, Dr. Rolla E. Dyer became Assistant Director of the Hygienic Laboratory, succeeding Dr. Arthur M. Stimson, who went over to the staff of Surgeon General Cumming in that year's large-scale reshuffling of assignments.

Dr. Dyer thus had charge of the Hygienic Laboratory whenever Dr. McCoy was away. He had been in this post only three weeks when Dr. McCoy sailed for Europe to attend the International Serum Sanitation Conference at Geneva, Switzerland, and to perform several other medical missions. The second day that Dr. Dyer was in charge it became his duty to carry out Service plans to divide up the Laboratory's Division of Pathology into three sections—Nutritional Disease, under Dr. Joseph Goldberger; Infectious Diseases, under Dr. James P. Leake; and Pathology, under Dr. Gleason C. Lake. As the years went by, Dr. Dyer gained much valuable administrative experience while Dr. McCoy was away.

Dr. McCoy revived the Journal Club which his predecessor, Dr. Rosenau, had started. An example of how its discussions of current medical research actually stimulated important new projects was given by Dr. James P. Leake.

"McCoy had put Dr. Kenneth F. Maxcy on a study of dengue fever in Georgia and Alabama," said Dr. Leake. "When he returned to Washington, D.C., he made a report to the Journal Club. He told of cases which showed a Weil-Felix reaction, an agglutination with certain proteins. Dr. Goldberger asked, 'Why isn't this typhus?' Maxcy went back to the South and epidemiologically proved it was typhus."

The work of Dr. Kenneth F. Maxcy at the Hygienic Laboratory from 1921 to 1929 was a notable contribution to medical research not only in typhus, but in other rickettsial diseases. Through clinical and laboratory studies he proved that mild typhus fever with rather low mortality is endemic in the Southeastern States. His work made clear that the then-prevailing theory that typhus was spread from person to person by lice was incorrect. He said that in all probability the carrier was a rodent, and that the disease was spread to humans by such blood-sucking parasites on rats as fleas, mites, or possibly ticks.

When Dr. Maxcy left the Hygienic Laboratory to become a university professor, eventually succeeding Dr. Wade Hampton Frost as professor of epidemiology at Johns Hopkins University, Dr. Rolla Eugene Dyer took over the studies on typhus. Dr. Dyer, through carefully controlled experiments, found the vector of typhus to be the common rat flea.

The scientists of the Public Health Service, each at his own especially-adapted work bench, carried on their tasks of investigation into different diseases. Often these scientists contracted the diseases which they were studying. The 1922 *Annual Report of the Public Health Service* stated: "All of the officers and employees of the Hygienic Laboratory who have participated in the work on tularemia have developed the disease. Fortunately a complete recovery has been made in each case."

In 1923, three workers in the Laboratory contracted undulant fever. One of them was Miss Alice C. Evans, bacteriologist, who had proven that the organism (then called bacillus) of this disease was the same as that of abortive fever, or Bang's disease, in cattle. Miss Evans suffered attack after attack of undulant fever for twenty-one years. On one occasion she was hospitalized for 14 months.

In her *Memoirs* Miss Evans told of the difficulty of diagnosing this disease, and of its chronic character, becoming disabling again and again with the result that its victims were apt to be regarded as neurasthenic or neurotic.

"To be ill and regarded as an imposter is to be in an almost unbearable position, and a damaged reputation is not readily repaired," she said. "The rule of law that the suspected should be considered innocent unless guilt is proved, ought to be applied also in medicine."

Alice C. Evans was still busily at work pinning down the proof of her discovery that the same organism caused abortive disease in cattle and undulant fever in human beings when the undulant fever struck her. The well-known Dr. Theobald Smith, recognized as the authority on Texas fever and other diseases in cattle, would not concede her claim. She stuck to her guns, preparing a scientific paper which she would publish in 1925. Dr. Smith, too, was preparing a paper in refutation of Miss Evans' contention, which he was planning to publish at about the same time.

Into this personal scientific conflict, Dr. William H. Welch, veteran manipulator in the international as well as the national medical field, did not hesitate to enter in his official capacity as advisor to the Hygienic Laboratory. He told Miss Evans that he wished that she and Dr. Smith would compose their differences on brucellosis. She did not reply. He approached her again. Still she made no gesture toward Dr. Smith.

Later a fellow worker at the Laboratory told her that Dr. Smith had been invited to become chairman of the Committee on Infectious Abortion of the National Research Council, but had refused because Miss Evans was to be invited to become a member of that committee.

Miss Evans then drafted a letter to Dr. Welch, asking him to com-



Courtesy Public Health Service

Dr. Alice C. Evans, the bacteriologist who proved that the organism which causes undulant fever in human beings is the same as that of abortive fever or Bang's disease in cattle, contracted undulant fever in laboratory work.

municate with Dr. Smith, giving him the evidence in proof of her claim which had accumulated in the past few months in Italy and Southern Rhodesia as well as in the United States.

Two days later Dr. Welch, who had a reputation all through the world of science of never writing letters, wrote to Miss Evans saying he had sent her letter on to Dr. Smith.



The evidence Miss Evans had collected silenced Dr. Smith. He never did publish his paper in refutation of her discovery. He became chairman, and Miss Evans became a member of the Committee of Infectious Abortion of the National Research Council. Miss Evans sent her entire correspondence with Drs. Welch and Smith to the Department of Bacteriology of the University of Wisconsin from which she received her M.S. degree in 1910.

Numerous attacks of undulant fever by no means defeated independent Alice C. Evans. At the age of 85, long after she had retired as a scientist at the National Institutes of Health, she petitioned the District Court in Washington, D.C., to let a three-judge panel determine the constitutionality of the Communist disclaimer required under the Medicare Act.

Dr. McCoy proudly called public attention to the accomplishments of his two outstanding women scientists, Miss Alice C. Evans and Miss Ida A. Bengtson. On April 17, 1923, they were pictured together in the *Washington Post* at their work in the Hygienic Laboratory, surrounded by clusters of test tubes, some slender, some fat, all with cotton stoppers. The caption called attention to their achievements in bacteriology. Miss Evans was credited with having established the standard of potency of antitoxin for the prevention and treatment of gas gangrene.

Miss Bengtson had discovered a new variety of the organism scientifically called *Clostridium botulinum* which she had obtained from the larvae of the green fly. This toxin was responsible for an outbreak of limberneck, a paralytic disease in chickens, which she had been called upon to study. Miss Bengtson came to be regarded as an expert on limberneck as Alice Evans was on brucellosis.

Partially because of sensational newspaper articles about narcotic addiction among motion picture stars, the Public Health Service was urged to make a scientific investigation in this field.

In 1923, Dr. Lawrence Kolb, recognized as one of the leading psychiatrists of the Service was called to the Hygienic Laboratory in Washington, D.C., to take charge of this study. Three years earlier, while the Service had charge of all hospitals for veterans, Dr. Kolb had been sent to Waukesha, Wisconsin, to open and run a hospital for victims of war neuroses in an old hotel. He had written many scientific articles on war neuroses which he described as a far broader and more complicated problem than mere "shell shock." Now that the Veterans Administration had taken over the hospital in which he worked, he was available to go to Washington, D.C.

Dr. Kolb had become especially interested in alcoholism, drug addiction, and other mental health problems in 1914, when he first entered the Public Health Service and was assigned to examining the immigrants coming into Ellis Island at New York. He arranged to take psychiatric courses in New York during the six years he spent at Ellis Island, charged

with the responsibility of sifting out of the incoming immigrants those who were mentally deranged or defective. Dr. Kolb wrote the first Public Health Service instruction book on the mental examination of immigrants.

He recalled that one day an Egyptian woman drug addict, taken from the incoming line, was sent to the hospital. Two days later, she was dead—from withdrawal. The Harrison Federal Narcotics Act of 1914 had then been passed, and physicians allowed themselves no leeway in its interpretation.

Dr. Kolb said that he had been shocked by her swift death. He said he had thought back to his boyhood home in a little Maryland community where there were only two addicts. They bought their laudanum freely across the counter and continued on their apparently harmless ways. He decided then and there that there must be more scientific knowledge of narcotics and their effects on the human body. He welcomed the opportunity to go to Washington to make such a study.

From headquarters in the Hygienic Laboratory, Dr. Kolb spent the year 1923 studying drug addiction in all its phases, laboratory and clinical. He went over the Eastern United States from Maine to Alabama to examine drug addicts. He treated them in the Gallinger Memorial Hospital which cared for indigent cases in the District of Columbia. He acquired comprehensive case histories on more than two hundred addicts. He wrote scientific papers on the subject which today are considered to be classics. From his fund of facts, he gave expert testimony before Congressional committees.

One of the leading lobbyists in behalf of anti-narcotic laws at the time was Richmond Pearson Hobson, a former naval officer, a hero of a dramatic incident at Santiago, Cuba, in the Spanish-American War, and a former member of Congress from Alabama from 1906 to 1914. Hobson in 1923 was demanding the publication by the Government Printing Office of fifty million copies of an anti-narcotics tract. He said he wanted it to go into every home and be served at every breakfast table.

When Dr. Kolb read this tract and found out that its statements were not scientifically correct, he arranged to be subpoenaed as a witness. He presented his factual testimony in refutation. This tract was never published by the Government Printing Office.

From his later studies, Dr. Kolb pointed out that withdrawal from the drug, then regarded as the chief medical hazard, could be easily solved in comparison with the tendency of the addict to relapse.

Rocky Mountain spotted fever, that long-baffling disease, was solved by the Public Health Service under Dr. Hugh S. Cumming.

In the spring of 1921 a prominent resident of Missoula, Montana, and his wife had died of Rocky Mountain spotted fever. Urgent appeals were made to the Public Health Service by the State of Montana to take up again the study of this devastating disease. Dr. Roscoe R.

Spencer, of the Hygienic Laboratory, was sent to Montana to take charge of this work in the spring of 1922.

With the inauguration of the new and more intensive campaign, a laboratory was set up in an abandoned two-story schoolhouse at Hamilton, Montana. Ralph R. Parker, Montana entomologist, was transferred to the Public Health Service as a special expert, moving his headquarters



Courtesy National Library of Medicine, PHS

Dr. Ralph R. Parker, Montana entomologist, who, with Dr. Roscoe R. Spencer, of the Public Health Service, developed Rocky Mountain spotted fever vaccine, and who later became the first Director of the Rocky Mountain Laboratory at Hamilton, Montana.



from his woodshed laboratory at Victor, Montana, to the old schoolhouse. There in the summer tick season, from 1922 to 1928, he and Dr. Spencer worked together. Dr. Spencer returned to the Hygienic Laboratory in Washington, D.C., each winter, and Parker continued working at Hamilton, Montana.

Their aim, announced in the 1922 *Annual Report* of Surgeon General Cumming, was to work out a successful method of immunizing against Rocky Mountain spotted fever. They sought, first, to find out how to eradicate the disease among animals, and, second, to study the tick virus so as to moderate or attenuate it in such a way that it would lose its infectivity yet retain its immunizing properties.

In 1923, the Montana State Board of Health called a conference of State health officers and others working on spotted fever. In particular, they brought in Dr. Hideyo Noguchi, a Japanese scientist at the Rockefeller Institute who had announced the discovery of a protective vaccine. However, several members of his test group developed serious cases of serum sickness. The vaccine had contained proteins foreign to the human



The two-story schoolhouse which became the U.S. Public Health Service Laboratory in which Dr. Roscoe R. Spencer, of the Hygienic Laboratory at Washington, D.C., worked with Dr. Ralph R. Parker, Montana entomologist, through the summer tick seasons of 1922 to 1928 developing a vaccine for Rocky Mountain spotted fever. Dr. Spencer gave himself the first human vaccination against spotted fever.

system, and the vaccine was abandoned. Spencer and Parker were stimulated to seek new ideas in the production of a preventive vaccine.

That winter Spencer in Washington, D.C., and Parker, in Hamilton, Montana, read a paper by Dr. F. Breinl, of Czechoslovakia, which reported that a vaccine to protect guinea pigs against typhus fever could be produced from the intestines of infected lice treated with carbolic acid.

Dr. Spencer, who had brought infected ticks to Washington with him, tried out the idea at the Hygienic Laboratory. His experiments there late in February 1924 indicated that the Rocky Mountain spotted fever vaccine prepared on the Breinl plan protected guinea pigs. Returning to Hamilton in March, he and Parker spent the summer trying to improve the vaccine. Dr. Spencer gave himself the first injection of the vaccine ever administered to a person.

By 1925, the Hamilton laboratory was able to produce two quarts of the vaccine for the immunizing of laboratory workers.

The old schoolhouse, anything but a safe place in which to grow infected ticks, soon became completely outmoded. In 1927, the State of Montana appropriated \$60,000 for the very special construction of a so-called "tick-proof" brick laboratory in Hamilton, Montana. The Public Health Service leased this building in 1928.

This first building of the present Rocky Mountain Laboratory is exhibited today with special pride. Visitors are shown the narrow stairway to the lone entrance of the old laboratory where wood ticks were grown until they were ground into vaccine. They are told of the many precautions taken so that no worker would be bitten by a tick. These included special mirrors for inspection and the sterilization of all clothing worn in the laboratory.

In this new building, Dr. Spencer was ready to attempt general vaccine production. That year sufficient vaccine was available for 4,000 persons. Within a few years, the output had been stabilized at the amount necessary to immunize about 150,000 persons, requiring the rearing of over a million infected ticks a year. The cost of production was gradually reduced from \$20 per person treated to 75 cents per person treated. The earliest method of making the vaccine was by grinding the infected ticks by hand with mortar and pestle. Later ore grinders were used, then tissue grinders, and finally mechanical blenders.

In 1928, Dr. Spencer was recalled to the Hygienic Laboratory for other studies there. He continued, however, to take a special interest in the Rocky Mountain Laboratory. So did R. A. Cooley, entomologist of the Montana Board of Health, who set up the first tick laboratory and persuaded Parker to come to Montana from Amherst, Massachusetts. In the exhibit rooms of the Rocky Mountain Laboratory are illuminated photographs of the four scientists who made possible the control of Rocky Mountain spotted fever—Dr. Ricketts, Mr. Cooley, Dr. Spencer, and Mr. Parker.

President Harding's sudden death on August 2, 1923, brought Vice-



Courtesy Rocky Mountain Laboratory, Hamilton, Montana

The first laboratory built for the manufacture of Rocky Mountain spotted fever vaccine by the State of Montana in 1927. The Public Health Service leased it in 1928, and purchased it in 1932. It still stands as part of the Rocky Mountain Laboratory.

President Calvin Coolidge into the White House. Andrew W. Mellon continued as Secretary of the Treasury, in charge of the Public Health Service, throughout the Coolidge administration. There was little change in the well-ordered world of Surgeon General Hugh S. Cumming and his Public Health Service.

Perhaps partially because the Public Health Service had been shorn of its far-spreading and complicated medical care of the veterans of World War I, it was able to concentrate during the Harding and the Coolidge administrations on scientific advances and on the vanquishing of epidemics.

As a result, a bill to increase the corps of commissioned officers and to coordinate further the activities of the Public Health Service was promoted by exceptionally able members of Congress—Representatives Carl E. Mapes, of Michigan, and James S. Parker, of New York, and Senators Wesley L. Jones, of Washington, and Duncan U. Fletcher, of Florida. This legislation was passed by both the House of Representatives and the Senate in 1928.

Because strengthening of the Public Health Service was bitterly opposed by Herbert M. Lord, Director of the Bureau of the Budget, President Calvin Coolidge, often called "economy-minded," vetoed this bill on May 18, 1928.



That summer, during a vacation in the Black Hills of South Dakota, President Coolidge announced that he did not choose to run for President in 1928. Herbert Hoover was nominated as the Republican candidate and defeated Democratic Alfred E. Smith.

It might be noted in passing that the Air Age had really arrived. Charles Lindberg had flown the ocean alone in 1927. The first international airport, serving the Pan American line to Havana, Cuba, was constructed at Miami, Florida, in 1928.

## Chapter 15:

### NEW TIMES; NEW TITLES; A NEW BUILDING OF ITS OWN

Surgeon General Hugh S. Cumming  
1920–1936

#### (Part Two)

Hugh Smith Cumming, who had steered a fairly independent course for the Public Health Service during the first half of his sixteen years as Surgeon General, was dominated by national trends during the last half.

Both Republican Herbert Hoover and Democrat Franklin D. Roosevelt were Presidents with elaborate national plans in all fields of human



Courtesy National Library of Medicine, PHS

Not until he was serving under his fifth President did Surgeon General Hugh S. Cumming get to occupy this book-lined office in the only building ever constructed as headquarters for the Public Health Service. Even then, he had to keep quiet about it as the Great Depression was at its worst.

welfare, including public health. The plans of Herbert Hoover were swept aside by the Great Depression. The plans of Franklin D. Roosevelt triumphed in a new system of Governmental economics called the New Deal. Surgeon General Cumming had to key the varied activities of the Public Health Service to the aims of these Presidents in turn. It was not an easy road to follow.

The year 1929, into which Herbert Hoover would enter as President on March 4, opened with significant portents that an old era in public health was bowing out, and a new one was opening.

On January 3, 1929, Dr. Cumming gave his daughter Diana, who had been born and had grown up while he was in the Service, in marriage to Manville Kendrick, son of a former Senator from Wyoming. A large number of the commissioned officers of the Public Health Service on duty in Washington and their wives attended the ceremony at St. Peter and St. Paul's Episcopal Cathedral.

Diana's wedding called everybody's attention to the fact that Dr. Cumming had become indeed a distinguished and seasoned commissioned officer of the Public Health Service. Both Mrs. Woodrow Wilson, widow of a Democratic president, and Mrs. Calvin Coolidge, wife of the outgoing Republican President, attended. It happened to be Mrs. Coolidge's birthday.

At that moment, another famous and brilliant commissioned officer, Dr. Joseph Goldberger, lay dying of cancer in the Naval Hospital, which had a joint garden wall with the grounds of the Hygienic Laboratory of the Public Health Service. Dr. Goldberger was having two blood transfusions each day furnished by his fellow medical officers in the Laboratory.

Transfusion, first tried in the 17th century following Harvey's discovery of the circulation of the blood, became a valued method of human treatment after Karl Landsteiner described the existence of three distinct blood groups, the present A, B, and O, in 1901. Dr. Goldberger was treated by the original technique, his donors lying beside him during the transfusion.

Dr. Goldberger died on January 17, 1929. His death, in a way, symbolized the approaching end of the old Hygienic Laboratory with its opportunity for independent research giving lasting fame to individuals, and the start of the new and spectacularly scientific National Institute of Health, in which projects were carried out by scientific teams.

Surgeon General Cumming summarized Dr. Goldberger's record this way:

"He made valuable contributions to the literature on measles, typhus fever, diphtheria, dengue, cholera and nutritional diseases.

"During the earlier years of his service he contracted diseases which he was engaged in studying on three separate occasions—dengue, typhus, and yellow fever.

"The last 15 years of his life resulted in the discovery of the cause,



cure, and methods for the prevention of pellagra. These researches also developed valuable methods for the investigation of other nutritional diseases. This work represents Dr. Goldberger's greatest contribution to medicine and is regarded by his colleagues as an achievement equal to any made during the present generation."

Later, Dr. George Rosen, medical historian at Columbia University School of Public Health and Administrative Medicine, pointed out that Dr. Goldberger's work on pellagra was significant not only because he demonstrated that pellagra was due to a dietary deficiency, but also because he studied the role of economic and social factors in its causation.

"Goldberger and his co-workers, particularly Sydenstricker, investigated pellagra in all its ramifications, developing and using methods appropriate to the various aspects under investigations," wrote Dr. Rosen.

"By making the household a basic unit of study, by undertaking house-to-house canvasses, and by surveying communities over a period of years, Goldberger, in the studies on pellagra, provided the first instance in the United States, and perhaps in the world, of a long-term epidemiological investigation of a chronic, non-communicable disease."

Milton Terris, Professor of Preventive Medicine at New York Medical College, went even further. In the preface of his book, *Goldberger on Pellagra*, published in 1964 by the Louisiana State University Press, he said:

"It is a curious fact that American epidemiology reveres *Snow on Cholera* as the classical demonstration of epidemiologic method and neglects its own masterpiece, the work of Joseph Goldberger on pellagra."

Terris pointed out that the Broad Street pump which Snow found to be the cause of a cholera epidemic in London "has become the veritable symbol of the public health movement."

"On the other hand, the 'Rankin Farm' and 'Seven Cotton-Mill Villages of South Carolina,' where Goldberger and Edgar Sydenstricker did much of their basic work, have no such place of honor," he said.

"Goldberger's investigation of pellagra, the American classic of epidemiology has remained buried on the back shelves of medical libraries, hidden in the massive red volumes of old *Public Health Reports*, gathering dust for more than three decades."

Terris contended that Snow's work on cholera "remains necessarily at the level of observation," whereas Goldberger was "a master of both observation and experimentation." Goldberger proved his contentions on pellagra by dietary studies which started with volunteer healthy prisoners at Rankin Farm of the Mississippi State Penitentiary, went on to mill villages, and to his wife and fellow medical officers of the Hygienic Laboratory in Washington, D.C.

Dr. Goldberger's death in all its details was symbolic of the selfless service that he, as a Public Health Service medical officer, gave to science and to his fellow men.

He had known that he was dying, and had issued his own instructions.

He specified that his ashes be scattered on the Potomac River, from the landing close to Hains Point, across from the Army War College, with no traditional religious service. He placed this matter in the hands of his wife, and of the three scientists closest to him—Dr. George W. McCoy, Director of the Hygienic Laboratory; Dr. Arthur M. Stimson, Assistant Surgeon General in charge of scientific research; and Dr. James P. Leake, a member of the staff of the Hygienic Laboratory.

Efforts of Dr. Goldberger's own family to force traditional funeral services were useless. Rabbi Abraham Simon of the Reformed Jewish Synagogue said prayers while the ashes were strewn by Dr. Stimson. These private services were held January 18, 1929. "I shall never forget that cold, bleak day," Surgeon General Hugh S. Cumming wrote in his memoirs after having attended the Hains Point services.

Despite Dr. Goldberger's tremendous contributions to science, his family was left in financial straits. Senator Ransdell, of Louisiana, immediately introduced a bill that his widow receive a special pension of \$125 a month, larger than that of widows of other Government investigators. She was granted this larger pension because she had risked her own life in taking part in her husband's experiments. She had received under her skin a large injection of blood taken from a person dying of pellagra in order to prove that pellagra was not an infectious disease.

Julius Rosenwald, a Jewish philanthropist, who had not known the Goldbergers, visited Mrs. Goldberger and offered to educate her children. She accepted for her daughter, but refused any aid for herself or her sons. They borrowed money from relatives to complete their education. One of them, namesake of his father, became a physician.

"My father left his children a legacy of love, respect, and a sense of values, as well as his scientific reputation," proudly said Joseph H. Goldberger, M.D., of El Reno, Oklahoma.

The day after the Goldberger funeral, January 19, 1929, President Coolidge signed an act to set up the Narcotics Division of the Public Health Service. This law ordered the establishment of two narcotics hospitals for the confinement and treatment of Federal prisoners addicted to the use of habit-forming drugs—and also of drug addicts who voluntarily presented themselves for treatment. This was no small responsibility to put on the Public Health Service in view of the fact that the Harrison Narcotic Act, passed in 1914 to become effective in 1915, was enforced by the Department of Justice.

The Harrison Act for the purpose of controlling narcotics, but drafted as an Internal Revenue measure, required registration and the payment of a tax by all persons who dealt in or gave away narcotic drugs. Sales of narcotic drugs were limited to those made on authorized official order forms. Exception in the use of this form was made in the dispensing to a patient by a qualified medical practitioner, "in the course of professional practice only," and in the sale by a druggist on a doctor's prescription.

Federal courts held that the sale or dispensing of narcotic drugs to a drug addict merely for the purpose of gratifying addiction is not "in the course of professional practice only" as that term is used in the Harrison Act. So many physicians were prosecuted under the Act, that most physicians have refused to prescribe narcotic drugs. This has been in contrast to the situation in England where physicians have traditionally assumed the responsibility of keeping narcotic addiction under control by regulating the dosage of their patients.

Planning for the two narcotic hospitals fell upon Surgeon General Cumming. Dr. Lawrence Kolb, who had made the initial studies on narcotic drug addiction leading up to the new law, had been sent to Europe in 1928 on a three-year tour of duty. He was conducting studies in connection with the examination of prospective immigrants prior to their being granted visas by a U.S. Consulate or Embassy for entrance into the United States. Dr. Cumming appointed Dr. Walter L. Treadway as first Director of the new Narcotics Division.

Few Americans have realized the scholarly plans for human betterment that Herbert Hoover took into the White House from his Cabinet post as Secretary of Commerce.

President Hoover had a great personal interest in the gigantic cooperative study of the Committee on Cost of Medical Care, of which his close friend and Secretary of the Interior, Dr. Ray Lyman Wilbur, the former President of Stanford University in Palo Alto, California, was chairman. Dr. Wilbur was himself a physician. He had been President of Stanford University while Herbert Hoover was a member of the Stanford faculty.

The Committee on the Cost of Medical Care had been organized in 1927 at a conference called by ten physicians, three economists, and three non-medical persons engaged in public health work. This conference was attended by about sixty persons, representing physicians, economists, public health experts, and the general public. Among the fourteen organizations listed as helping to shoulder the costs of the Committee on the Costs of Medical Care were the United States Public Health Service, the American Medical Association, and the Metropolitan Life Insurance Company. Eight foundations also gave funds, among them the Carnegie Corporation, the Rockefeller Foundation, and the Twentieth Century Fund.

After Herbert Hoover's election and before his inauguration, Dr. Isador S. Falk, who would actually conduct the study and was in charge of its staff, visited the Hygienic Laboratory of the Public Health Service from the University of Chicago. He set up the same kind of arrangement there that was earlier enjoyed by Dr. Ludwig Hektoen, another Chicago scientist who spent long periods of time working in Washington, D.C. Dr. McCoy made available to Dr. Falk a work place and the Laboratory resources of technical personnel, equipment and supplies to enable him to continue his bacteriological and immunological work in leisure time, evenings and



weekends while he conducted his statistical studies on the cost of medical care elsewhere in Washington, D.C.

"For a number of years I worked there and had a highly valued association with the staff of the Laboratory," said Dr. Falk. "Technicians of the Laboratory staff generally assisted me, as by taking care of my culture collection when I was away and by assisting me in experiments when I needed help. I participated in staff seminars and in many conferences on technical problems."

In his statistical role, Dr. Falk worked more directly with the Public Health Service. Edgar Sydenstricker, famed statistician who now, at his own request, gave only part of his time to directing the Public Health Service Statistical Office, was the Public Health Service representative on the Committee on the Costs of Medical Care. Dr. Selwyn D. Collins, Associate Statistician to Edgar Sydenstricker in charge of statistical investigations in the Public Health Service participated intensively in various statistical projects of the Committee.

The largest collection of records showing the frequency or incidence of illness during 12 months in samples of the general population of all ages at home and at work (about 39,000 persons) was made by the Committee on the Costs of Medical Care in cooperation with the Public Health Service and State and local departments of health. About 40 percent of these illnesses were found to be respiratory, and about half of them "common colds." The nation-wide findings bore out the local findings made by Edgar Sydenstricker in Hagerstown, Maryland.

When the Committee completed its five-year program, Dr. Collins inherited the basic data of the Committee's family survey and published many papers based, in part, or wholly, on this data. During the Hoover administration, the Committee compiled 26 volumes of reports, and a 27th summary volume of 623 pages titled, *The Costs of Medical Care* by Isador S. Falk, C. Rufus Rorem, and Martha B. Ring, with a foreword by Dr. Ray Lyman Wilbur.

"Increasingly, for many people the choice is to live with disease or suffer with debts," said Dr. Wilbur in his foreword.

Four major conclusions were drawn by the Committee on the Costs of Medical Care:

1. Medical service should be more largely furnished by groups of physicians and related practitioners, so organized as to maintain high standards of care and to retain the personal relations between patients and physician.
2. The costs of medical care should be distributed over groups of people and over periods of time.
3. Methods of preventing disease should be more extensively and more effectively applied, as measures both of service and of economy; and should be so financed as to minimize the economic deterrents to their extension.

4. The facilities and services for medical care should be coordinated by appropriate agencies on a community basis.

Proceeding according to plans made before he became President, Herbert Hoover himself was sponsoring vast studies by experts which lined library shelves with a tremendous assembly of valuable information, much of it on public health.

President Hoover appointed a Research Committee on Social Trends which prepared a series of thirteen scholarly monographs published through a grant made by the Rockefeller Foundation. Edgar Sydenstricker wrote the monograph on "Health and Environment." He used as basis for one chapter, "The Nature and Extent of Ill Health" his own "typical population" studies in Hagerstown, Maryland, from 1921 to 1924.

Other monographs in this series concerned with the problems of the Public Health Service dealt with population trends, the metropolitan community, rural social trends, and races and ethnic groups.

President Hoover gave Dr. Ray Lyman Wilbur charge of organizing the decennial White House child conference which would be coming up again in November of 1930. The President, and his Secretary of the Interior, set one hundred committees of twelve experts each to work a year ahead of the conference to assemble and publish the facts on every conceivable aspect of child care. The entire one hundred reports, all compiled in the year 1929, added to the remarkable bookshelf of Herbert Hoover, and to this country's permanent records on child care.

On April 19, 1929, the month after President Hoover's Inauguration, the Public Health Service moved out of the old Butler Building on Capitol Hill, which was to be demolished for a new House Office Building, into Temporary Building C on the Mall at Seventh Street, N.W. Built during World War I, and intended for demolition when the War was over, "C" Building had been taken over by the Public Health Service as headquarters for the establishment of hospital and dispensary services to veterans all over the United States. Portions of the Public Health Service remained there when the newly-organized Veterans Administration moved out.

"C" Building had none of the faded luster of the old Butler Mansion on Capitol Hill which had served as a temporary White House in the early part of the Arthur administration. Dr. Cumming said that the mantles and mirrors of the Butler Building were so beautiful he had them stored by the Architect of the Capitol for use in a future PHS building. He never knew what became of them.

The opening of more space for the Public Health Service in "C" Building enabled Dr. Cumming to make a change which he obviously had been thinking of for some time. The log of the Hygienic Laboratory for December 13, 1929, kept down the years by Dr. McCoy's secretary, told the story in a brief entry as follows:

"Today the office of Rural Sanitation and all its works was transferred to the Bureau, that is, space formerly occupied at the Laboratory,

first in the South Building, and for the past year in the North Building, was vacated; Rural Sanitation will now be domiciled in the Bureau, 'C' Building."

In other words, Dr. Leslie L. Lumsden, who had been one of Surgeon General Hugh S. Cumming's chief rivals for that post, and who had operated his own almost-independent rural sanitation crusade out of the Hygienic Laboratory, had been moved to quarters under the immediate supervision of Dr. Cumming. For Dr. Lumsden this was the beginning of the end of "rural sanitation," but for a time he prospered.

By June 30, 1930, Dr. Leslie L. Lumsden had cooperative demonstration projects in rural sanitation in progress in 202 counties of twenty-four States. The States having more than twenty projects each were: Kentucky, with 31; Louisiana, with 24; Tennessee, with 22; and Arkansas, with 21. The details of the work carried on in the 202 projects were made the subject of a special report for circulation in a campaign to have county health units paid for on a Federal-State cooperative basis through an Act of Congress. Public opinion appeared to be favoring such a system at this point, and the attitude of many members of Congress was favorable.

Ten years of continuous increase in county health offices, between 1920 and 1930, were proudly cited, year-by-year, in the 1930 *Public Health Service Annual Report*. The gain was from 109 in 1920, to 505 in 1930, an increase of 396 full-time county health services.

"The prospects are good for a better rate of progress in this vitally important field in the next few years," said this report for the fiscal year 1930, published on October 15 of that year.

"The cooperative demonstration work of the Public Health Service in rural sanitation evidently has been a very important factor in the development of efficient, economical whole-time rural (county) health service in the United States.

"It would appear altogether advantageous for this activity of the Public Health Service now to be placed technically on a cooperative, instead of a demonstration basis, and be conducted on a largely increased scale."

This passage in the report of Surgeon General Cumming, was in the section signed by Assistant Surgeon General Warren F. Draper, one of "Dr. Leslie L. Lumsden's boys," who always referred to him affectionately as "Lummy" and considered him the elder statesman even though technically Dr. Draper was now Dr. Lumsden's boss.

What was being asked for, of course, was precisely the system of grants by the Federal Government, matched by grants from the States, which Julia Lathrop, Chief of the Children's Bureau, had secured from Congress to finance Maternal and Child Health Services. This had been vigorously opposed by the American Medical Association, and so was the Lumsden plan for county health services on a continuing appropriation rather than



(To Be Tacked Inside of the Privy and NOT Torn Down.)

# Sanitary Privies Are Cheaper Than Coffins



For Health's Sake let's keep this Privy CLEAN. Bad privies (and no privies at all) are our greatest cause of Disease. Clean people or families will help us keep this place clean. It should be kept as clean as the house because it spreads more diseases.

*The User Must Keep  
It Clean Inside. Wash  
the Seat Occasionally*

## How to Keep a Safe Privy:

1. Have the back perfectly screened against flies and animals.
2. Have a hinged door over the seat and keep it CLOSED when not in use.
3. Have a bucket beneath to catch the Excreta.
4. VENTILATE THE VAULT.
5. See that the privy is kept clean inside and out, or take the blame on yourself if some member of your family dies of Typhoid Fever.

## Some of the Diseases Spread by Filthy Privies:

Typhoid Fever, Bowel Troubles of Children, Dysenteries, Hookworms, Cholera, some Tuberculosis.

The Flies that You See in the Privy Will Soon Be in the Dining Room.

# Walker County Board of Health

Courtesy National Library of Medicine, PHS

This poster for privies, printed for one of Dr. Leslie L. Lumsden's hundreds of county health campaigns, is an example of his methods of cleaning up the countryside, and also of establishing political power. This phase of his career ended when he was promoted to the position of District Director of several Southern States in 1930.

a "demonstration" basis. But members of Congress were favorable to Lumsden and it seemed he was about to reach his goal.

On November 20, 1930, Dr. Leslie L. Lumsden, who had spent more than nineteen years promoting county health units after originating the first full-time one at Yakima, Washington, was transferred to New Orleans, Louisiana. He had been promoted by Dr. Cumming out of Washington to the position of District Director of several Southern States.

For a number of years, Surgeon General Cumming was considered as a candidate for the presidency of the American Medical Association, a post held by his predecessor, Surgeon General Blue. Dr. Lumsden complained to close friends that he had been banished because of Dr. Cumming's ambition to be President of the AMA, which opposed Dr. Lumsden's rural sanitation program.

Surgeon General Cumming made a good showing in the 1932 AMA election in which Dr. Walter L. Bierring of Des Moines, Iowa, was elected President for the year 1933. In June of 1934 Dr. Cumming was defeated for the Presidency of the AMA by only 14 votes.

As the year 1929 drew to a close, an outbreak of psittacosis, a disease contracted by humans from parrots and some other psittacine birds, occurred almost simultaneously on three continents—Europe, North America, and South America. It was caused by a shipment of diseased parrots in the Christmas trade from a South American port. Even the scientists in this country scarcely knew that there was such a disease as psittacosis. However, it brought to the Public Health Service and its only Hygienic Laboratory one of its most deadly and dramatic crises.

One morning early in January 1930, thirty-six cases of psittacosis were reported to Surgeon General Hugh S. Cumming, with three deaths in nearby Baltimore, Maryland, alone. Telegrams from State health officers and others asking advice on psittacosis deluged the desk of the Surgeon General. He turned the problem over to Dr. George W. McCoy, Director of the Hygienic Laboratory, who put Dr. Charles Armstrong in charge of psittacosis research. On January 6, 1929, Dr. Armstrong headed a group of physicians sent to Annapolis, Maryland, "to see a case or cases of psittacosis." He brought back no parrot suspect on this trip. But soon he was bringing suspected parrots in from Washington, D.C., Baltimore, Maryland, and the Eastern Shore of Maryland. Others were shipped in from Maine and Ohio.

Dr. Armstrong started studying these birds in two basement rooms of the red brick North Building of the Hygienic Laboratory with the help of his valued laboratory assistant, Henry (Shorty) Anderson. Dr. Armstrong was one of the most brilliant medical researchers of the Public Health Service. He had traced an epidemic of botulism, supposed to have been caused by poisoned liquor in prohibition days, to ripe olives canned in tin. He had also made significant studies of influenza.

Surgeon General Cumming simultaneously started holding regular

staff meetings on the subject of psittacosis. The one on January 24 was for the purpose of putting into effect Executive Order No. 5264 to stop the importation of parrots from all countries until the causative organism and the means of transmission of psittacosis could be studied.

Three days later, "Shorty" Anderson, assistant to Dr. Armstrong in this study, was taken to the Naval Hospital, ill from psittacosis. There he died of it on February 8. He was buried at Arlington cemetery on Monday, February 10, at 2 p.m., with military honors as a Navy veteran.

"Practically everyone from the laboratory attended the funeral," said the logbook of the laboratory that day.

However, this same log revealed, there was one highly notable exception, Dr. Charles Armstrong himself, who had just been taken to Navy Hospital, a psittacosis patient.

Dr. Roscoe R. Spencer, who that same year would be awarded the gold medal of the American Medical Association for his original work in the development of a tick vaccine to prevent Rocky Mountain spotted fever, turned himself into an errand boy to search out convalescent serum for Dr. Armstrong. He went to Aberdeen, Crisfield, and Cambridge, Maryland, and failing to find there people who had recovered from psittacosis who would give blood, finally secured some from Johns Hopkins Hospital in Baltimore, Maryland, through Dr. Harold L. Amoss. It was administered to Dr. Armstrong who immediately improved.

With Anderson dead and Armstrong in the hospital, Dr. McCoy alone took charge of the infected birds. Yet laboratory personnel, many of whom merely passed the closed doors of the experimental animal rooms in the basement, came down with this highly-infectious disease.

Robert Lanham, the night watchman, caught the disease. Mrs. Carlin, a laboratory assistant, succumbed. Dr. H. E. Hasseltine and Dr. Edward Francis, two of the outstanding medical researchers, were sent to the Naval Hospital with psittacosis.

On March 5, the day that Dr. Francis went to the hospital with the disease, Dr. McCoy sent for the fumigation squad from the Quarantine Station at Baltimore, Maryland, and decreed that everybody must be out of both the North and South buildings of the Hygienic Laboratory by 2 p.m. He then had the windows of both buildings sealed.

The next morning, so narrated Paul de Kruif, then spending much time in the laboratory gathering materials for his book, *Men Against Death*, Director George W. McCoy went alone into the basement rooms where they were kept and personally chloroformed to death all the experimental animals.

Then McCoy turned the Baltimore exterminators loose on the Hygienic Laboratory which was fumigated with such thoroughness that sparrows flying over the roof fell dead.

Famous Dr. Ludvig Hektoen, who, again chairman of the Division of Medical Science, National Research Council, was doing private research



at the Hygienic Laboratory as he had done in previous years when serving in the same capacity, contracted psittacosis and went to Providence Hospital under the special care of Dr. James P. Leake, who knew about the use of convalescent serum. Dr. Hektoen was treated with this serum, and recovered.

The Laboratory log listed three others who took the disease, Mr. Blackwell, Mr. Miller, and C. J. Murphy, an attendant. All of them were sent to the Naval Hospital, and for all of them Dr. Spencer secured convalescent serum, travelling as far as New York City to obtain his supplies.

The illness ran through January, February, and March, the last four patients leaving the Naval Hospital early in April. Then Dr. Hasseltine had a relapse. On April 29, the writer of the log thought it noteworthy to report: "Today there were no psittacosis patients in the Naval Hospital."

Psittacosis research was transferred that month to the Quarantine Station at Curtis Bay, Baltimore, Maryland, under Dr. Armstrong with Mr. Lanham as his assistant. Both had recovered from the disease and were considered immune.

Dr. Armstrong eventually recorded that the causative agent, which had been almost simultaneously discovered by several investigators, including himself and Dr. McCoy, was a filter passing organism present in the sputum and organs of infected persons, and in the organs and discharges of infected birds. The extensive series of psittacosis epidemics in 1929 and 1930, he established, totalled 850 cases in 14 different countries. More women than men had the disease. He said it was probably because women were more in the homes where birds were pets, and that they did more caring for the birds than men did. Of the 167 cases in this country during the 1929 and 1930 epidemics, Dr. Armstrong said, 105 were women and 62 were men. There were 33 deaths, all in persons under 30 years of age.

These outbreaks resulted in a quarantine regulation imposing permanent restrictions on the commercial importation into the United States of parrots and "love birds."

On September 22, 1932, more than two years after the psittacosis outbreak in the Hygienic Laboratory, Mrs. William E. Borah, wife of the Senator from Idaho, lay almost dying of psittacosis at her home in Boise. Mrs. Borah had long been fond of her own collection of "love birds." Senator Borah, of course, had known of the psittacosis outbreak in the Hygienic Laboratory and that the patients, all but one of whom recovered, had been treated with convalescent serum solicited by Dr. Spencer. So the Senator wired to the National Institute of Health to rush the serum. There was none on hand.

"I've had it. Take some of my blood," said Dr. Charles Armstrong.

Dr. Armstrong's blood was flown from Washington, D.C., to Mrs. Borah in Boise, Idaho. About 350 centimeters of blood was sent.

The elder doctor in charge of her case said, "It's no use to give it to her. She's dying."

A younger doctor who was assisting him said, "Give it all, and give it intravenously."

Senator Borah concurred, and it was done. Mrs. Borah rallied, and recovered.

When Mrs. Borah returned to Washington, D.C., she went out to the National Institute of Health on February 9, 1933, to meet and thank Dr. Armstrong for saving her life. Senator Borah also gave him full credit.

However, the meticulous scientists at the Institute continued to regard the efficacy of the convalescent serum as a cure for psittacosis as "not scientifically proven." Dr. Armstrong's own article on psittacosis, published by the Oxford University Press in 1948, did not even mention the blood serum of a recovered patient as a treatment for psittacosis. Only penicillin was cited as having been proven effective against the disease. Psittacosis is now successfully treated with other antibiotics.

The inauguration of Herbert Hoover as President was just five days ahead of the opening on March 9, 1929, of an international airport at Brownsville, Texas, on the Rio Grande River between the United States and Mexico. It was used by the Pan American Airways Company, then operating a fleet of passenger and mail planes in daily trips to and from Mexico City and Tampico. For the medical examinations which the Public Health Service was giving to air passengers entering the United States, a new quarantine building was constructed at the Brownsville international air field.

The gradual change-over from immigration-inspection and quarantine systems which applied only to water-borne commerce to systems which encompassed air-borne commerce as well was on. During the fiscal year 1930, twenty-three United States airports were designated as airports of entry, and six others were selected to be so designated as soon as funds for the employment of adequate medical personnel became available.

Surgeon General Hugh S. Cumming represented the United States on the Quarantine Commission of Air Navigation which met at Paris, France, on March 11, 1930, and drew up a preliminary draft of a proposed international agreement for the sanitary control of aircraft. It was submitted to the Permanent Committee of the Office International d' Hygiene Publique.

"The remarkable development of aerial transportation has brought with it international sanitary and public-health problems of major importance," said Surgeon General Cumming. "Regular lines of aircraft have been established, providing direct and rapid communication between areas in Africa, Asia, and South America, which have long been endemic centers of various pestilential diseases, such as cholera, plague, and yellow fever, and noninfected but infectible territory in Europe, North America, and in fact almost all the rest of the entire world.

"The journey by airplane from most of the endemic centers of these various pestilential diseases is usually less than the incubation period of these diseases, excepting journeys from endemic centers of cholera."

The bill to increase the commissioned officers corps and extend the Public Health Service, which had been vetoed by President Coolidge was again voted by Congress and was signed by President Hoover on April 9, 1930.

The two top medical officers in charge of the Hygienic Laboratory who had been requested by Dr. Joseph Goldberger to scatter his ashes—Dr. Arthur M. Stimson, Assistant Surgeon General in charge of Scientific Research, and Dr. George W. McCoy, Director of the Hygienic Laboratory, eventually were supplanted, in successive moves, by the same creative and brilliant promoter of the public health.

His name was Dr. Lewis R. Thompson, called "Jimmy" by his multitude of friends. In 1930 he succeeded Dr. Stimson as Chief of the Division of Scientific Research. This placed him in administrative charge of the Hygienic Laboratory and of field investigations of stream pollution, malaria, cancer, nutritional diseases, child hygiene, milk, dental studies, industrial hygiene, and biometrics.

He had been promoted as a result of ten successful years as director of the Office of Industrial Hygiene and Sanitation. Ever since the post of Chief of the Division of Scientific Research had first been filled by Dr. John W. Kerr, it had carried with it the task of lobbying on Capitol Hill for appropriations in all of its fields. The handsome, friendly Dr. Thompson soon became an alter ego for Surgeon General Hugh S. Cumming, himself a master lobbyist.

Veteran chairman of the Senate Committee on Public Health and National Quarantine was Senator Joseph E. Ransdell, of Louisiana. He had been chairman of this committee back in March 1916 when the successful hearings were held for the establishment of a national leprosarium. He thus became one of the many legislators who have won home State prestige by the promotion of health projects.

Now Senator Ransdell was convinced, largely by Assistant Surgeon General Thompson, that he could win lasting national fame by successfully sponsoring legislation to change the name of the Hygienic Laboratory to the National Institute of Health and providing in that law for its liberal expansion.

The Ransdell Act, signed by President Herbert Hoover on May 26, 1930, carried this title: "To establish and operate a National Institute of Health, to create a system of fellowships in said institute, and to authorize the Government to accept donations for use in ascertaining the cause, prevention, and cure of disease . . ." The legislation authorized an appropriation of \$750,000 for the erection of additional buildings "at the present Hygienic Laboratory." A pen used by President Hoover in signing this Act is now at the National Library of Medicine, and was formerly in





Courtesy National Library of Medicine, PHS

Dr. Louis R. Thompson, who as Assistant Surgeon General under Dr. Hugh S. Cumming promoted the law establishing the National Institute of Health, secured its acreage in Bethesda, Maryland, and was its Director from 1937 to 1942.

the possession of Dr. John W. Kerr, chairman of the first National Institute of Health board appointed to plan the expansion.

The day that the National Institute of Health Act was signed, Dr. William Colby Rucker, who had been the chief promoter of the Surgeon Generalcy of Surgeon General Blue, and who signed the first report estimating the number of World War I soldiers who would require hospital care, was buried in Arlington Cemetery. The commissioned officers of the Public Health Service in Washington, D.C., including its Hygienic Laboratory, attended in a body. The cause of his death, which took place in New Orleans, Louisiana, where he headed the Marine Hospital, was septicemia following a minor infection sustained in his work.

The top personnel of the old Hygienic Laboratory did not change when the National Institute of Health became successor to the Hygienic Laboratory. Dr. George W. McCoy continued as head, with Dr. Rolla E. Dyer as his assistant. But when the Board to consider its expansion was set up in July 1930, Dr. Lewis R. Thompson, as Assistant Surgeon General, was on the Board, and Dr. George W. McCoy was merely called to Service Headquarters to sit in on its meetings. The other members of this Board were Dr. John W. Kerr, Chairman; Dr. Royd R. Sayers, Dr. Thomas Parran, and Dr. Wade H. Frost. After Dr. Parran became Surgeon General, Dr. Thompson consolidated Dr. McCoy's position with his own, causing Dr. McCoy to leave the Public Health Service.

Dr. Roscoe R. Spencer was quick to see the opportunity the expansion plans might offer to the Montana State laboratory at Hamilton, Montana, which was manufacturing the vaccine which he and Dr. Ralph R. Parker had developed for tick fever. Dr. Spencer had been on duty in Yellowstone Park that July, and stopped at Hamilton, Montana, on his way home. A meeting of the Montana State Board of Entomology was called to listen to Dr. Spencer. The minutes of that meeting said that he had told them that the Ransdell Bill, which had changed the name from Hygienic Laboratory to National Institute of Health, had also made it possible for the Public Health Service to enlarge the work on Rocky Mountain fever. He said the Service might even take over the Hamilton laboratory.

On April 7, 1930, the Montana State Board of Entomology adopted the resolution which had been suggested by Dr. Spencer.

The purchase thus set in motion was completed on February 2, 1932, when a check from the Federal Government for \$68,757 was accepted by Montana State Treasurer F. E. Williams in full payment for the State Entomological Laboratory at Hamilton, Montana. The National Institute of Health of the Public Health Service took over the Rocky Mountain spotted fever research formerly carried on at the laboratory by the State of Montana.

The old customs of the Hygienic Laboratory were quietly abandoned.

The long-standing Advisory Board of the Hygienic Laboratory, with Dr. William H. Welch at its head, was rechristened the National Advisory



Courtesy Rocky Mountain Laboratory, Hamilton, Montana

The 1930 law setting up the National Institute of Health made it possible for the Public Health Service to purchase for interstate research purposes, the laboratory in which it was manufacturing vaccine against Rocky Mountain spotted fever at Hamilton, Montana. Functioning under the National Institute for Allergy and Infectious Diseases, this Rocky Mountain Laboratory conducts research principally into rickettsiology, "slow" viruses (long in incubating), tuberculosis vaccines, and immunology.

Council to the Surgeon General. Dr. Cumming called this Board into conference April 10, 1931, entertained them all at dinner, and went with them over the grounds of the National Institute of Health which had long been the Hygienic Laboratory, with Dr. George W. McCoy, Director, as guide.

Twelve days later, when Dr. McCoy had left Washington for summer-long duties in Europe, former Senator Ransdell announced in an address to the local Parents and Teachers Association the names of a new Conference Board of the National Institute of Health. He himself was its director, with offices in the National Press Building. Only Dr. William H. Welch, of Baltimore, Maryland, was on the new advisory board as well as the old one. Dr. Welch, who already had celebrated his eightieth birthday in Constitution Hall of the Daughters of the American Revolution with President Herbert Hoover as chief speaker, was listed in the pamphlet



of the Conference Board of the National Institute of Health as: "Nestor of American Medicine; and leading bacteriological authority in this country." Dr. Welch lived to lay the cornerstone of a new U.S. Marine Hospital in Baltimore, Maryland, on January 29, 1933, probably his last public appearance before his death.

At the P. T. A. conference held in the National Press Club, former Senator Ransdell declared the National Institute of Health Act which he had sponsored was "a veritable declaration of war against all physical forces detrimental to health on a greater scale than ever before attempted." He added that the Institute would center in the Nation's Capital all the country's scientific and medical resources for combating disease.

"New researches on a greater scale than ever before attempted will be conducted into cancer and investigations into the cause and cure of infantile paralysis and heart disease and new studies of the common cold, influenza, and pneumonia will be conducted," said former Senator Ransdell.

Only infantile paralysis later was lost from the list then given for Institute research, and many more diseases were added. When Franklin D. Roosevelt, himself an infantile paralysis victim, came in as President, the Institute conceded the bulk of research on that disease to the researchers paid by the voluntary organization the National Foundation for Infantile Paralysis conducted by his onetime business partner, Basil O'Connor, using the slogan, "March of Dimes."

Less than a month after the name of the Hygienic Laboratory was changed to the National Institute of Health, the name of the Narcotics Division of the Public Health Service was changed to the Division of Mental Hygiene. Its chief would carry the title of Assistant Surgeon General, and Dr. Walter L. Treadway would continue to be its chief. The Act of June 14, 1930, which changed the name also instructed the Surgeon General to conduct research into narcotic drugs, and into causes, prevalence, and means of treatment of mental and nervous diseases.

Two other 1930 laws were put in charge of the new Mental Hygiene Division. One authorized the Public Health Service to provide medical services in Federal prisons. The other instructed the Attorney General to set up a hospital for defective delinquents, to be administered by a competent expert on mental diseases designated by the Surgeon General of the Public Health Service.

Every day for a month prior to the White House Conference on Child Health and Protection held in November of 1930, the *Associated Press* carried an article on one or more of the various research reports compiled by the 1,200 child experts at the request of President Hoover.

But during the conference itself the noteworthy scientific accomplishment of the assembling of these reports was blotted out of the news by a bureaucratic battle between Surgeon General Hugh S. Cumming, Chief of the Public Health Service, and Miss Grace Abbott, Chief of the Chil-

dren's Bureau, and Secretary of the White House Conference on Children and Youth.

The printed report of the subsection of the conference devoted to Governmental administration of child health laws, by a vote of 32 to one, recommended that the maternal and child health services of the Children's Bureau be transferred to the Public Health Service. This move obviously was meant to correct the mistake which many Public Health Service officers felt that bachelor Surgeon General Wyman had made by not accepting the Children's Bureau into the Public Health Service in the first place.

The subsection of the child conference which made the recommendation was composed with one exception, Miss Grace Abbott, of persons favorable to the Public Health Service. Miss Abbott had cast the lone minority vote. She had gained no small fame and popular support through her administration of the Sheppard-Towner maternity and infancy act, defunct but regarded as worthy of reviving, and now about to be transferred out of her Bureau.

In the subsection meeting on Federal administration of child health laws, Miss Abbott demanded deletion of the section recommending transfer. Soon her friends had this dissent seething through all the other subsection meetings being held in auditoriums all over Washington, D.C.

The controversy went on up to the section meetings where Miss Abbott again had popular backing. The bitter quarrel was threatening to break out in the huge mass meeting scheduled as the final Conference session in Constitution Hall. The top Conference leaders quietly settled the matter during the night before the mass meeting. The proposed transfer was abandoned. The final session of the conference became devoted to patriotic oratory and the adoption as the findings of the Conference of the "Children's Charter," a non-controversial declaration of noble principles. Miss Abbott herself called for a rising vote of thanks to President Hoover. Everybody rose and rushed for their trains.

In 1931, Dr. Joseph W. Mountin, who had served as secretary to the public health section of the White House Conference on Child Health and Protection, was called back to Public Health Service Headquarters in Washington, D.C. to head the new Office of Public Health Methods in the Division of Scientific Research. He was one of "Dr. Lumsden's Boys." From 1921 to 1926 he had successfully organized county health units in Missouri. There he initiated programs for prevention and control of trachoma, malaria, and tuberculosis. He promoted State services in sanitary engineering, public health nursing, maternal and child health and vital statistics. From 1926 to 1930, Dr. Mountin did the same type of work in the State health department of Tennessee.

Operating now on a National scale, Dr. Mountin concentrated on big health problems. As Dr. Lumsden had done before him, he recruited around him promising young men to help make studies and prepare recom-

mendations. In 1931, he proposed exploring the relation of housing to health. In 1932, he called attention to the health-promoting possibilities of accident prevention, and of programs directed against heart disease and cancer. In 1935, he warned the public of the health hazards of air pollution.

The congealing force of the depression for years was felt in all Federal projects. Surgeon General Hugh Cumming took the oath of office for his fourth term in March of 1932. In his temporary headquarters on the Mall, the Surgeon General continued to plan quietly for the new building which he so badly needed. On May 7, 1932, its cornerstone was laid, on Constitution Avenue between Nineteenth and Twentieth Streets, NW. No Speech was made. Secretary of the Treasury, Ogden L. Mills, Assistant Secretary, Ferry K. Heath, and Surgeon General Cumming took part in the highly-simplified ceremonies.

Almost at the close of that fiscal year, June 29, 1932, the economy bill mandating Federal workers to take a month's leave without pay, was signed by President Hoover. Employees in almost all private industries were taking pay cuts too. The Public Health Service was called upon to report as to how badly the depression was affecting the Nation's health. Investigators failed to find definite statistics. President Hoover took the position that the Federal Government could help only in National disasters, and not in those brought on by man, such as a depression.

Congress, by various devices, extended some aid.

On June 30, 1932, the Public Health Service completed the spending of approximately \$2,000,000 appropriated by Congress for rural sanitation demonstration projects in drought-stricken areas. This Federal money was used cooperatively with the States in addition to a regular appropriation of \$338,000 for rural sanitation demonstrations. It was voted by Congress because of the near-starvation situation in many rural areas at the depths of the depression. Congress even ruled that this money could be spent for purchase and distribution of medical supplies. As a result, in addition to many other benefits tallied up, a million and a half people were given antityphoid vaccinations; more than three-fourths of a million received diphtheria immunizations; and more than half a million were vaccinated against smallpox. Allotments were made to 472 cooperative health projects in 21 drought-stricken States.

Under such circumstances, former Senator Ransdell's plans for dramatic extensions of the National Institute of Health proceeded slowly. But on March 2, 1933, two days before Franklin D. Roosevelt was inaugurated as President, officials were ready at last to lay the cornerstone for a third building on the site of the old Hygienic Laboratory. It would serve as an Administrative Office, Library, and reading room for the new National Institute of Health. The cornerstone was laid by Ferry K. Heath, Assistant Secretary of the Treasury, with four others assisting: Surgeon General Hugh S. Cumming; Dr. Lewis R. Thompson, Assistant Surgeon General in Charge of Scientific Research; Dr. George W. McCoy, Director of the



National Institute of Health; and former Senator Joseph E. Ransdell, of the Institute's Conference Board.

All through the early 1930's a gentle, low-voiced, but very determined woman, Margaret Sanger, educated Congress on birth control, a subject fated to become of increasing concern to the Public Health Service. Mrs. Sanger then had been arrested eight times and had spent many days in jail in the twenty years she had been promoting birth control clinics and lecturing on birth control in public meetings. It would be thirty years more before a President of the United States, Lyndon B. Johnson, would include a paragraph in behalf of "voluntary family planning programs" in his State of the Union message.

Margaret Sanger appeared on Capitol Hill as the Chairman of the National Committee of Federal Legislation for Birth Control. She was trying to change an 1873 statute so as to legalize the conveyance by mail of printed matter relating to birth control.

"We are not working for the open privilege of the mails," she said. "We are merely asking the use of the mails for sending scientific and medical books to physicians to get to the doctors first the best information so that they can disseminate it to patients. We are also seeking a change in existing law which will permit instruction in clinics and hospitals."

Margaret Sanger succeeded in getting her "Doctors' Bill" introduced in both houses of Congress although it carried the phrase "by request" in the House of Representatives. Senate hearings were held by the Judiciary Committee in 1931. House hearings in 1932, because of several spectacular witnesses, were reported by the National press associations. This broke a press taboo similar to that on the mention of venereal diseases. When use of the mail was made possible by court decisions, Mrs. Sanger dropped the battle for the "Doctors' Bill."

Surgeon General Hugh S. Cumming moved the Public Health Service into its new Administration Building on Constitution Avenue at Nineteenth Street on May 11 to 16, 1933. It was the only new building ever to serve solely as headquarters of the Public Health Service. This rather momentous move, occurring in the one hundred and thirty-fifth year of its existence, took place almost unnoticed in the general excitement of the time. For it occurred during the spectacular "First One Hundred Days" of the Franklin D. Roosevelt administration.

No Governmental agency was boasting of affluence during the early days of the New Deal when all efforts were being concentrated on pulling the country out of depression. Not until the year 1935 was a photograph of the new United States Public Health Service Building published in its *Annual Report*. Surgeon General Cumming wrote a friend in England: "Wish you could see my new office building. It is really a beauty, though in these hard times, with everyone talking about poverty and Government expenditures, one is almost afraid to look respectable or ride around in a car, even if it is one of which he himself has made a first payment."

In a handsome office suite of this building, Surgeon General Hugh S. Cumming completed the remaining three years of his fourth term of office. Here the Public Health Service played its part in the early depression-fighting days of the New Deal.

The Rocky Mountain Laboratory in Hamilton, Montana, manufactured 40.8 extra litres of spotted fever vaccine for the boys in the forest camps of the Civilian Conservation Corps, the youth group organized by Franklin D. Roosevelt to take unemployed boys off the city streets and rural roads. They improved National parks and forests by cutting roads, building picnic areas, and installing stone walls and log guard rails along highways. Many of their camps were in regions subject to tick-carried spotted fever.

The Federal Relief Agency under Harry Hopkins, who changed its name from time to time, called on the Public Health Service to set up health-promoting work projects to give jobs to the unemployed.

The most significant of these projects was known as the "Health Inventory," obviously a continuation of the work of Edgar Sydenstricker. It was a study of 865,000 families in 90 cities and 23 rural areas made with a \$3,450,000 grant from the Emergency Relief fund. Part of this study was made on 9,000 of the families earlier studied by the Committee on Cost of Medical Care. At its peak, more than 5,000 people were employed. The field work lasted until February of 1936. When tabulation was started in January of 1936, more than 1,000 persons, 90 percent of them on relief, were employed in the central office.

A drainage program for malaria control was operated in fourteen States. It was estimated that one-fifth of the population was removed from the hazards of malaria at a saving of not less than \$100,000,000. This project provided \$4,500,000 for labor.

In important seaports and inland areas where typhus fever was common, surveys of rats were conducted to determine its prevalence in those disease-carrying rodents. The Federal Government paid \$1,000,000 to those who did the work.

Men were put to work on a \$1,500,000 project sealing abandoned coal mines to reduce the acid wastes being discharged into streams used as water supplies. At the peak of this work, 2,927 men and 24 women were on the payroll. Of these, 2,700 were in the States of Alabama, Pennsylvania, and West Virginia.

A large-scale privy-building program was conducted in twenty-four States with a total Federal expenditure of \$5,000,000 for labor. States and localities were required to furnish the materials, most of which were bought from local dealers. At the peak of activities more than 35,000 men were employed. More than 200,000 privies were constructed in the fiscal year 1933.

That veteran promoter of privies, Dr. Leslie L. Lumsden, in New Orleans, Louisiana, must have been highly pleased with the New Deal

privy-construction project. However, the Federal funds which had gone, year after year, into the rural sanitation demonstrations and organization of county health units which he had started and kept going, were completely cut off by Congress. The reason was that Federal money was being poured into work relief projects for the unemployed.

Dr. Lumsden, who now was conducting a large-scale survey of tuberculosis, took time enough out as an individual investigator in the early New Deal to add to his life-score another notable minority report, this one on encephalitis.

In July of 1933 a new type of encephalitis broke out in St. Louis, Missouri. There was a large number of cases in the suburban area and a small number in the city itself. No one knew the reason why. Dr. James P. Leake headed the distinguished group of Public Health Service medical officers sent to St. Louis to help in the study of the disease. The others were Dr. Louis L. Williams, Jr., Dr. Charles Armstrong, and Dr. Walter T. Harrison.

In August an outbreak of sixty cases of encephalitis was reported in Independence, Missouri. The Public Health Service announced it would send a person to Independence to study that localized outbreak. The investigator sent to Independence, Missouri, was Dr. L. L. Lumsden.

Dr. Leake earlier had proven, through studying a winter epidemic of poliomyelitis, that polio could not possibly ever have been spread by the stable fly, as had been once announced by Dr. Milton J. Rosenau, or by any other insect vector. The investigators found in the St. Louis encephalitis outbreak striking similarities to poliomyelitis. It was decided that the disease was probably spread, like polio, by person-to-person contacts.

"Early in the epidemic, because of their unusual prevalence in the St. Louis area, mosquitoes were considered possible vectors and extensive studies were conducted upon laboratory animals and man relative to this question," said Surgeon General Cumming in his 1934 *Annual Report*. "Experiments with various species present in the epidemic area were entirely negative."

Dr. Lumsden's dissenting report was not even published at the time. Indeed, it was not published until 1958, which was 25 years after the St. Louis outbreak and 12 years after Dr. Lumsden's death in 1946. Dr. Lumsden had investigated in his own way. He had secured a letter dated September 14, 1933, from Surgeon General Cumming authorizing him to make field surveys in St. Louis, Independence, Kansas City, Sedalia, Jefferson City, and Columbus, in Missouri; in East St. Louis, Collinsville, and Chicago, in Illinois; and in Louisville, and Jefferson County, in Kentucky. He had secured the help of State and county health officers in his detailed studies.

He stated in his text of a dozen printed pages that in the St. Louis region intensive detailed studies were made "by other officers of the





Courtesy National Library of Medicine, PHS

Dr. James P. Leake, who headed the group of distinguished Public Health Service officers sent to St. Louis, Missouri, to investigate a new type of encephalitis. This photograph was taken when Dr. Leake was in his eighties and a valuable contributor to this book.

Public Health Service, and their findings, presumably, will be the subject of an exhaustive detailed report.”

In this case, Dr. Lumsden had made an understatement. The Public Health Service in January 1935 published a *Public Health Bulletin* of 117 pages titled: “Report on the St. Louis Outbreak of Encephalitis.”

This truly important report was an outstanding example of cooperation between a city, its universities and hospitals, and the Federal Government. It carried a foreword by Surgeon General Cumming which said: "The isolation of the virus and the thorough and continuing study of the circumstances under which the disease occurred and its effects were definitely furthered by the plan of cooperation adopted."

Two universities, St. Louis University and Washington University, had combined their services with those of the United States Public Health Service and the United States Army under a newly-formed Metropolitan Health Council. City and county hospitals were included. Thirty-seven physicians were named as contributors to the study.

The virus which caused the encephalitis had been successfully isolated in St. Louis. Dr. Charles Armstrong of the Public Health Service, had been the leader in this scientific discovery.

As to the mosquito being the vector, however, the report gave a long list of experiments, all having negative results.

The report then told of human experiments made on convicts in the State penitentiaries of Mississippi and Virginia in which all three species of mosquitoes were used. Again, all tests were negative.

"Our results therefore speak against mosquito transmission in this form of encephalitis," said the official report.

But it left one small loophole that this conclusion might be wrong with this sentence: "In spite of entire failure under a wide variety of experimental conditions we cannot say that the possibility of transmission of encephalitis by mosquitoes in nature is finally disproved."

In his minority report, Dr. Lumsden ably marshalled his own evidence to prove his own conclusion. It was:

"Encephalitis lethargica of the epidemic type which prevailed in Missouri and neighboring States in the summer and autumn of 1933 is caused by an agent (micro-organism, virus, or toxin) which is conveyed to persons by mosquitoes which have bred under some sort of unusual conditions in water heavily polluted with human sewage."

Among the statements he made in support of this conclusion were:

"The abundance of sewage-bred mosquitos appeared to be the only consistent fact of difference between communities which were heavily affected by encephalitis in this epidemic and those which were not affected or only slightly infected."

"Every fact observed in the places visited by the writer seems in line with the hypothesis of mosquito conveyance and not one fact observed is in conflict with it. Thus hypotheses pass into theory."

On October 31, 1934, President Roosevelt appointed Miss Josephine Roche as Assistant Secretary of the Treasury in charge of Public Health. Surgeon General Cumming at the time was enroute to the Pan American Sanitary Conference held in Buenos Aires, Argentina, November 12 to 22. Rumors soon were circulating among the delegates that the public health

philosophy of Miss Roche was so opposed to that of Dr. Cumming that he soon would be replaced. This seemed likely to lessen his power in the conference. Before it opened, the *Associated Press* had carried a denial of this rumor from the Secretary of the Treasury in Washington, D.C. Many years after he retired from the Public Health Service, Dr. Cumming wrote of Miss Roche: "Our relations were most cordial, both personal and official."

However, Miss Roche, who had quietly organized and was serving as chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities, was indeed fostering plans contrary to the well-known beliefs of Dr. Cumming. He had announced his opposition to the report of the Committee on the Cost of Medical Care. She was working toward amendments to the Social Security Act to put into law the recommendations of that report. These recommendations eventually became the Wagner-Murray-Dingell bill for compulsory health insurance. This bill was never passed, but was revived years later, for persons over 65 years of age in the Medicare Act.

Miss Roche, a colorful character of modest manner has over the years proven to be one of the most amazing organizers in the whole history of public health. She was the daughter of a Colorado mining magnate and was schooled in an Eastern progressive college. Her independent spirit rose in revolt at the conditions in her father's coal mines. She enlisted in a life-long crusade—on the side of the miners. She saw many of her ideas drafted into law during the New Deal of which she was a part. She worked out more of them, on a demonstration basis, as Director of the United Mine Workers of America Welfare and Retirement Fund which for some years operated a chain of hospitals. She still was conducting her United Mine Workers crusade, with Dr. Warren F. Draper, former Assistant Surgeon General of the Public Health Service as aide, at the time this book was written.

Surgeon General Cumming went to Lexington, Kentucky, to open on Saturday, May 25, 1935, the first Federal hospital for drug addiction. The hospital had been carefully planned, largely by Dr. Lawrence Kolb who had conducted, from the Hygienic Laboratory, the first full-scale Federal studies in narcotics. For the opening, at which Dr. Cumming headed an official party from Washington, D.C., Dr. Kolb already had the huge place functioning as a medical research institution. About 3,500 people attended the dedication. For four days, Saturday, Sunday, Monday, and Tuesday, it was opened to visitors. A total of 17,341 persons went through.

The 280 inmates with which it started were representative of the addiction victims to be studied and rehabilitated if possible. Almost all of them had been transferred from the Federal prison system. But there were also representatives of the other two classifications to which the institution was open—probationers from courts who voluntarily sub-





Courtesy National Library of Medicine, PHS

The hospital for narcotic drug addicts at Lexington, Kentucky.

mitted themselves to confinement and treatment; and ordinary citizens voluntarily seeking treatment.

Dr. Kolb had been assigned to duty as medical officer in charge on October 1, 1934, the month that ground was broken, with ceremonies, for the hospital six miles from Lexington. Thus he literally conducted the construction "from the ground up" of a Federal hospital to function for narcotic addicts. He saw what he believed would count for the salvage of their lives put into brick and mortar.

The immense institution, big enough for work and play every day for the occupants of one thousand beds was surrounded by more than a thousand farm acres. It was at first titled "United States Narcotic Farm." Dr. Kolb expected its inmates, at first all men, to get plenty of outdoor exercise by doing farm work. But farming would not be the only rehabilitative occupation. Provision was also made for indoor shops to furnish the inmates with daily occupation, vocational training, and some education. From the beginning, plans were made to admit women addicted to drugs as soon as needlecraft industries in which they could work had been organized. There was a theater for meetings and music.

One of the four industries started was the Lexington Woodcrafts Industry which has become famous for the making of fine office furni-

ture. William Victor McConkey, a teacher of woodcraft at the college at Berea, Kentucky, was brought in to take charge of it.

However, Dr. Kolb also correctly saw this institution as a prison in which the great majority of the inmates would be serving sentences. It therefore was built for security. All windows were barred. Automobile entrances were fitted for ever-watchful guards.

In that year of 1935, what proved to be a great bonanza unexpectedly fell to the Public Health Service. A wealthy Washington, D.C., couple, Mr. and Mrs. Luke I. Wilson, had decided to give their suburban home and forty-five adjoining acres to the Government to be used as the site of some institution for the general good of the people of the country. Mrs. Wilson was the daughter of one of the founders of the Woodward & Lothrop department store. Mr. Wilson's fortune came from a sporting-goods store in Chicago, Illinois.

The White House circulated to the various Government departments copies of the letter offering their home as a gift. The State Department, first in order of protocol, did not accept the offer. When it reached the Treasury Department, it went first to the Public Health Service as Congress had just made an appropriation to it of \$100,000 for an animal farm to supply the National Institute of Health with experimental animals. At Surgeon General Cumming's direction, Dr. Thompson drafted a memorandum to the President asking for the acreage. Dr. Cumming simultaneously arranged an interview with Mr. Wilson. Other interviews followed. Dr. Thompson immediately became the close friend and confidant of the Wilsons.

Soon they were planning to move the National Institute of Health itself to the Wilson place in Bethesda, Maryland, with the proposed farm for experimental animals as an adjunct.

In September of that year Hugh S. Cumming, Jr. was married to Miss Winifred West, with the Secretary of State and Mrs. Cordell Hull among the guests. Thus both of the Cumming children, born while their father was in the Public Health Service, were married while he was Surgeon General.

The International Sanitary Convention for Aerial Navigation, on which Dr. Cumming had worked for several years, became effective in this country on November 22, 1935.

In the last *Annual Report* presented by Surgeon General Cumming, dated October 15, 1935, an oddly revealing little paragraph appeared. It read:

#### "Scientific Research

"If the additional funds and personnel for research under the Social Security Act become available early in the next session of Congress, as expected, the matter of providing adequate facilities for the carrying on of certain new projects will present a very difficult problem. The situation could best be met by the construction of suit-

able buildings on the 45-acre site at Bethesda, Md., which has recently been donated to the Public Health Service."

That was the sum total that he said about two of the most momentous and conjoined moves ever made for public health. Surgeon General Cumming had put into a single small neat package the two "Promised Lands" which he would not be permitted to enter.

He would not conduct the Public Health Service as greatly expanded under the Social Security Act. It had been well known that President Franklin D. Roosevelt intended to bring from New York to Washington, D.C., as Surgeon General of the Public Health Service, Dr. Thomas Parran who had served as New York Health Commissioner while Roosevelt was Governor. Dr. Cumming would not oversee the construction of the gigantic medical research plant in Bethesda, Maryland, now known as the National Institutes of Health. In that venture, Surgeon General Parran would be ably assisted by Dr. Lewis R. Thompson, who had negotiated for the gift of the land.

At the close of sixteen years under Surgeon General Cumming, the Public Health Service had six medical research projects in progress: on Rocky Mountain spotted fever, at Hamilton, Montana; on cancer, at Harvard University in Boston, Massachusetts; on venereal diseases, at Stapleton, Staten Island, New York; on plague, at San Francisco, California; on stream pollution at Cincinnati, Ohio; and on nutrition, every epidemic as it came up, and other problems of preventing diseases at the National Institute of Health overlooking the Potomac River in Washington, D.C. Dr. Cumming had turned the Federal leprosy experiment station on Molokai over to the territorial government of Hawaii.

During the time Dr. Cumming was Surgeon General new Marine Hospitals had been built at New Orleans; San Francisco; Stapleton; Galveston, Texas; and Seattle, Washington.

Surgeon General Cumming had appointed the first woman commissioned officer of the Public Health Service, Dr. Stella Warner. He had instituted a Negro health service under a Negro physician, Dr. Rosco Brown, which annually held a National Negro Health Week conference.

In an unpublished summary of his own career, Dr. Cumming paid tribute to the help given him by his wife. From their days in Japan until he retired from the Public Health Service, Mrs. Cumming always held an "At Home" on Mondays at which all the highest Federal officials and all commissioned officers of the Public Health Service were welcome to come as was their wives. Each week from fifty to one hundred and fifty visitors were entertained. Mrs. Cumming, herself an expert on health and welfare, was appointed to the Board of Public Welfare of the District of Columbia when it was organized, and served for eight years (from 1926 to 1934).

The departure of Surgeon General Hugh S. Cumming from the Public Health Service was prolonged and dramatic. President Franklin D. Roose-



vett called him to the White House to present him personally with his letter expressing deep regret that Dr. Cumming no longer was physically able to bear the strain of his work as Surgeon General. Among the many entertainments held in his honor was a luncheon given by Assistant Secretary of the Treasury Josephine Roche.

Surgeon General and Mrs. Cumming then sailed from New York through the Panama Canal on a farewell tour of the West Coast. After visits in Colorado and Wyoming, they returned to Washington, D.C., in time for him to attend the conference of State and Territorial health officers, where he was made an honorary life member, and also a meeting of the Directing Council of the Pan American Sanitary Bureau. On April 15, 1936, Dr. and Mrs. Cumming sailed to France for a leisurely tour of Europe.

Dr. Cumming was asked by his successor, Dr. Parran, to continue in his capacity as Director of the Pan American Sanitary Bureau which all Surgeons General had held since the organization of its predecessor, the Inter-American Sanitary Bureau, in 1902. Serving without pay, except for a car, chauffeur, and travel reimbursement, he directed sanitary affairs for the twenty-one American republics until January 31, 1947.

## Chapter 16:

### A HEALTH INSURANCE PLAN— ACRES FOR MEDICAL RESEARCH

Surgeon General Thomas Parran  
1936–1948

#### (Part One)

Surgeon General Thomas Parran was a remarkable National and international statesman in the field of public health. He had a genius for devising proposed laws and international agreements to advance his objectives. For this country, he planned ahead for medical research and for war. When the war was over, he formulated the World Health Organization, with the Pan American Health Organization as its regional office.

As Surgeon General, he concentrated, first on the broad principles of preventing and reducing the volume of illness; and, second, on seeking out and applying scientific research to specific diseases, including mental illness.

That he was born to be a physician was always a part of Thomas Parran's consciousness. He was named for an ancestor, the Dr. Thomas Parran who was a medical officer on the staff of General George Washington in the Revolutionary War. All of Thomas Parran's ancestors traced back to pre-Revolutionary Americans. Many of them were physicians.

It was simply taken for granted that Thomas Parran, although he was born on a tobacco farm in Southern Maryland, thirty-five miles from the nearest town, St. Leonard, would be a physician. Managing the exceptionally high standard of early education necessary for this project was no small feat. He was tutored by an aunt who must have been an extraordinary teacher. For he was so thoroughly grounded in the essentials that he got the highest grade in Calvert County in a competitive examination which enabled him to matriculate in St. John's College, Annapolis, Maryland, one of the oldest colleges in the United States.

When he was graduated from St. John's, he was accepted as a medical student at Johns Hopkins University Medical School in Baltimore, Maryland. However, a family consultation resulted in a decision that it would cost too much for Thomas to obtain his M.D. degree at Johns Hopkins. He was sent to the Georgetown University Medical School in Washington, D.C., where he could live with a maternal uncle, and thus cut down expenses while attending the school.

To help pay his way through Georgetown University, Thomas Parran worked during the last two summers in the laboratories of the District of Columbia Health Service which were presided over by Dr. Joseph J.



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Snapped by a LIFE photographer in the lobby of the Mayflower Hotel as he attended the National Health Conference called by Miss Josephine Roche in July of 1938, Surgeon General Thomas Parran chanced to be backed up by a strangely symbolic piece of statuary. The figure is in the Parran spirit—looking far, far ahead, going full speed, and giving a final, completing tap to the task just accomplished.

Kinyoun, the man who had started the Hygienic Laboratory for the Public Health Service in 1887.

Dr. Parran has attributed his choice of the public health field entirely to his two summers of close association with Dr. Kinyoun, who was then an elderly man.



"Early in 1917, the year after I was graduated at Georgetown, I told Dr. Kinyoun I was going the next day to take the competitive examinations for medical officers in the Public Health Service," said Dr. Parran.

"'Come to see me first,' Dr. Kinyoun said.

"I went, and he presented me with a small object wrapped up in tissuepaper. It was a rabbit's foot. He said it had been 'given him by a patient.' Actually, the patient had dozed off and his rabbit's foot had fallen as he slept, and Kinyoun had found it. He had it with him when he took his examination to join the Public Health Service and passed with flying colors.

"When I took my exam for the Public Health Service I had that same rabbit's foot with me. I dared not to do otherwise. I came out at the head of the class of seven or eight of us.

"But Dr. Kinyoun wouldn't give me the rabbit's foot. I had to give it back to him."

As a young officer in the Public Health Service, Dr. Parran was assigned to rural sanitation.

"This meant teaching people in the Southern States to build privies," Dr. Parran explained. "The program was under Dr. Leslie L. Lumsden, and we all called Dr. Lumsden 'Chief.'"

Several other young medical officers working with him in various parts of the South later added to his prestige as Surgeon General. Among them were Dr. Joseph W. Mountin and Dr. Ralph C. Williams.

In 1926 he was appointed head of the Venereal Disease Division of the Public Health Service, where he served four years putting into effect as intensive a program as could be conducted with an annual appropriation of \$60,000. Not long after his appointment, his first wife, the former Angela Bentley Vandoren, died, leaving him with four young sons. On August 30, 1930, he married B. Carroll Keller, of Chicago, Illinois, an able writer who had worked with him, and who continued to advance his career.

Franklin D. Roosevelt, as Governor of New York State, that year asked him to serve as State Commissioner of Health on the basis of recommendations he had received. One was from the Director of the Milbank Fund, a friend of Roosevelt's, to whom his name had been suggested by Edgar Sydenstricker.

"I had never met Governor Roosevelt at that time," said Dr. Parran. "I accepted his invitation by saying, 'If you can get President Herbert Hoover to give me leave of absence without cutting my connection with the U.S. Public Health Service, I will come.'"

"So he had me on loan from Herbert Hoover. In 1936, FDR, having moved to the Presidency of the United States, said he would recall the loan."

Dr. Parran said that President Roosevelt had asked him to become Surgeon General in 1933 when Roosevelt became President. Dr. Parran

had insisted that the President wait to make this appointment until the four-year term of Dr. Cumming had ended.

However, Dr. Parran, knowing that he would have this position, made extensive plans for what he termed "better and more complete health services for all the people." In a speech titled: "Health Services of Tomorrow," made on February 7, 1934, before the Joint Conference of the American Academy of Political and Social Science and the College of Physicians of Philadelphia, Dr. Parran boldly presented the concept that "the care of public health is a primary responsibility of government."

He pointed out that out of a total per capita expenditure each year of \$30 for all medical care, only \$1 was spent on prevention. Due to the depression, he said, the Alabama health budget had been cut 50 percent, and the budgets of Mississippi and North Dakota, 75 percent. Health budgets in all States and cities had been cut 17 percent from 1931 to 1932.

"The medical profession is increasingly unable to provide for all the people the minimum essentials of medical care without adding unbearably to the load of poorly paid and unpaid work it now carries," he said.

It was possible, Dr. Parran conceded, that a speedy return of economic prosperity would bring "a revolt of trade and industry against onerous government control." On the other hand, he pointed out, the trend toward a capitalism conducted by trade associations and labor organizations under government regulation and control might make cooperative effort the dominant factor in medical services. He added: "Then we almost certainly shall see various schemes of social insurance—old age, unemployment, sickness."

"Whatever path we take, regardless of how earnestly we as doctors may fight for or against it, the health service of tomorrow inevitably will conform to the governmental framework," said Dr. Parran.

Early in the New Deal, Franklin D. Roosevelt appointed the President's Science Advisory Board. At that time, Dr. Lewis R. Thompson, Assistant Surgeon General of the Public Health Service in charge of the Division of Scientific Research, was concentrating on the problem of setting up authority and financing so that the National Institute of Health would become the outstanding medical research center in the country. He sought out Dr. Karl T. Compton, chairman of the President's Science Advisory Board, and persuaded him to set up a sub-committee to make a special study of medical research in the Public Health Service in the hope that the Board would recommend a stronger NIH.

President Franklin D. Roosevelt added two names to the Science Advisory Board for the purpose of making this study—Dr. Thomas Parran, and Dr. Milton J. Rosenau. Thus it was that Dr. Parran, who had worked closely with Dr. Kinyoun, the first Director of the old Hygienic Laboratory, also had a close association with Dr. Rosenau, its second Director. Dr. Rosenau was now 65 years old and was concluding his long service as Professor of Public Health and Preventive Medicine with the Harvard

Medical School before entering on his third career as dean of the School of Public Health, University of North Carolina, at Chapel Hill.

The third member of the sub-committee studying the Public Health Service as a medical research possibility was Dr. Simon Flexner, who had been its close friend ever since he had helped make the bubonic plague survey in the early 1900's.

In an article, "The Rise of a Research Empire: NIH, 1930 to 1950," published in the magazine *Science* in December 1962, Donald C. Swain pointed out that this sub-committee recommended "increased research in cancer, heart disease, tuberculosis, malaria, venereal disease, and dental problems."

Swain added: "It also suggested that 'funds for the scientific work of the Public Health Service . . . be increased by the sum of \$2,500,000 over and above the allotment for 1934-35' and that the disbursement of funds be left 'to the judgment of the Surgeon General with the approval of the National Advisory Health Council.'"

Swain's comment on this was: "This was a powerful endorsement of medical research in the Public Health Service, and it was carefully phrased so as to recommend maximum flexibility for NIH. If Congress approved, NIH would be free to channel new funds into research in the chronic diseases."

Dr. Thompson's next contribution to this cause was the organization of a letter-writing campaign to convince Congress and to give it the backing of public opinion. So it was that the Public Health Title (VI) of the Social Security Law of 1935, hand-tailored by the Roosevelt advisory sub-committee which Parran headed, authorized the expenditure of up to \$2,000,000 annually for the "investigation of disease and the problems of sanitation."

The President's Science Advisory Board expired in 1935. But it had lasted long enough to do its work so far as Dr. Parran's administration of the Public Health Service was concerned.

Quite naturally, Dr. Parran was prepared to administer Title VI when he was sworn in as Surgeon General on April 6, 1936. In annual reports remarkable for their concise impact, Dr. Parran proclaimed the new era in public health made possible by this legislation.

His first such report, made October 15, 1936, when he had been in office only a little over six months, stated:

"Under the public health provisions of the Social Security Act, a national health program has been made possible for the first time in the history of the Public Health Service. This modernized national health program was inaugurated during the latter part of the fiscal year. With the advice and assistance of the State health officers, grants-in-aid were made to the States for the last five months of the fiscal year 1936 and allocations were made for 1937. By the close of the period covered by the report, every



State had submitted a program of work under the provisions of the public health title of the Social Security Act."

The payments to the States for the five months, totaling almost two and a half million dollars, ranged from a high of \$218,351.86 for the State of New York, to a low of \$6,955.00 for the State of New Hampshire. North Carolina, by matching funds, secured \$115,686.64 as against \$54,844.12 for the larger and more populous State of California. In all of the States where Dr. Leslie L. Lumsden and his teams had done intensive public health education the early sums were sizeable.

Surgeon General Parran reshaped the Public Health Service to fit in with, not only the Social Security Act, but also all the other New Deal projects in which any activity relating to public health was involved. Included were the privy-building, malaria-control, mine-sealing, and National Health Survey projects started under Dr. Cumming in cooperation with the Works Progress Administration.

Gradually, by first inserting the new title in parentheses in his reports, Dr. Parran changed the old Division of Domestic Quarantine, which had dealt with interstate epidemic control, to the Division of State Relations, which helped finance health programs under the Social Security Act. In every State and territory, he fostered venereal disease programs and tuberculosis case-finding and treatment.

He defined the special health problems of each section of the country and allocated special funds to attack them. Sometimes the work came under the State plans made in the Social Security program. Sometimes the financing was through Works Progress Administration funds set up to give jobs to people on relief.

In the Western States and in Hawaii, pressure was put on the prevention of sylvatic bubonic plague spread through wild animals, such as ground squirrels, prairie dogs and coyotes, as distinguished from bubonic plague in cities spread by rats. On February 1, 1936, San Francisco had turned its plague research laboratory over to the State Board of Health. Under the program set up by Dr. Parran, use of this laboratory was extended to all States desiring such service. A mobile field laboratory to locate sylvatic bubonic plague operated in 16 counties of Oregon, 28 counties of California, 9 counties of Nevada, and the whole State of Idaho. Later, many scientists came to believe that sylvatic bubonic plague has always been present in the wildlife of this country.

In the South, the special emphasis was on the malaria control program, mostly financed by Works Progress Administration funds.

Research was conducted at five U.S. field stations and one in the Panama Canal Zone.

In the North, the special funds were offered for industrial hygiene programs. Seventeen States at once set up Industrial Hygiene units in their Departments of Health.

An immediate result of the Social Security Act was the strengthening

of all State health organizations, and local health organizations spread rapidly. Approximately 175 new local health units were brought into existence before the close of the 1936 fiscal year. By the close of the 1937 fiscal year, four new consulting services to the States had been added by the Public Health Service—nutrition, dental hygiene, laboratory methods, and accounting.

In a 1937 speech, Dr. Parran said: "There are sound scientific, social and economic reasons for more aggressive attention to the public health. I think we have reached a stage in our civilization when we must accept as a major premise that citizens should have an equal opportunity for health as an inherent right with the right of liberty and the pursuit of happiness."

Sometimes on his own initiative, sometimes with the advice and cooperation of the far-seeing Dr. Joseph W. Mountin, Dr. Parran put exceptionally able medical officers into projects where they functioned unusually well. Assistant Surgeon General Ralph C. Williams went on a loan basis to the Rural Resettlement Administration, which later became the Farm Security Administration, to deal with the knotty medical problems of the rural poor. Dr. Herman E. Hilleboe was put in charge of the tuberculosis control program. Dr. Leonard A. Scheele was trained for cancer research. And, Dr. Louis L. Williams, Jr., continued his long career in malaria control.

Dr. Thompson, an able right-hand to Dr. Parran as he had been to Dr. Cumming, had the proposed NIH medical research program well lined up. One of his early announcements said: "A program of attack on disease along some 70 lines has been planned by the U.S. Public Health Service, to be put into effect if and when funds for scientific research become available as authorized by the social security legislation."

The plan of Dr. Thompson to change the National Institute of Health into a major medical machine to fight chronic diseases was deeply disturbing to Dr. George W. McCoy, still in charge of NIH.

Mark D. Hollis, able sanitary engineer in the Public Health Service, vividly recalled the way he found this out. Shortly after he finished college he was working under Dr. Rolla Eugene Dyer on typhus fever in the NIH laboratory when Dr. McCoy came in, obviously upset, to talk to Dr. Dyer.

"I couldn't help but hear what he said, and I couldn't possibly forget it," said Mr. Hollis.

"He said that he had just had lunch with Dr. Thompson, and had learned that Dr. Thompson had acquired a tract of land way out in the woods and was thinking of building an NIH out there—just when we had finished our campus here.

"The words he used in summing up the situation were: 'We've got two new buildings and NIH needs no more space than this.'

"The land that Thompson was talking about, was the present NIH campus in Bethesda."

It was not surprising that on February 1, 1937, the year after Dr. Parran became Surgeon General, Dr. McCoy found himself organized out of his longtime position as head of the laboratory at Twenty-third and E Streets. The Division of Scientific Research of the Public Health Service, which Dr. Thompson headed, was consolidated with the National Institute of Health, and was to be operated as part of the Institute.

"The merger is expected to reduce the administrative overhead and increase the scientific output through a single directorship," announced Surgeon General Parran.

The single director of the merged scientific research and demonstration operation was Assistant Surgeon General Lewis R. Thompson.

Dr. McCoy was put to work on a National survey of his old specialty, leprosy. Colleagues recall that he moved out of the Laboratory overlooking the Potomac River where he had held sway for so many years to work at an old aquarium building of the Federal Fish and Wildlife operation. Soon he was offered the dual position of Director of the Department of Preventive Medicine and Public Health of Louisiana State University Medical School in New Orleans, and Director of the Epidemiological Investigations of Leprosy, New Orleans. He was on that job when he retired from the Public Health Service on June 30, 1938. There for almost a decade he enjoyed an honored university career, serving for the last two years before his final retirement in 1947 as Acting Dean of the Medical School.

Asked what he considered his outstanding accomplishments as Surgeon General, Dr. Parran said: "I was most notorious in connection with the syphilis program. But I would place first the up-building of the medical research under the National Institute of Health; and, second, the formation of the World Health Organization."

Dr. Parran did indeed gain notoriety as well as a descending death rate from his campaign against syphilis—and all the other venereal diseases. Probably his name will always be linked with the introduction of the word "syphilis" to radio audiences and newspaper readers.

He recalled that his first National publicity on this subject came in 1934 when he was New York State Health Commissioner. His summary of the incident follows:

He had been invited by Dr. Livingston Farrand, President of Cornell University and chairman of a health education committee for the Columbia Broadcasting System to give a lecture over that radio network. Dr. Parran also was a member of this health committee. From his office in Albany he sent an advance copy of the speech he would give to CBS in New York.

When he arrived at the New York studios, however, a very agitated young man gave him this greeting: "You can't use the word 'syphilis' on the air."

"I did not ask to appear," was Dr. Parran's reply, "I was asked to appear by CBS."



"We've just got to cut it off," said the agitated young man. He then went out and brought into the studio a girl to play the piano. Over the air, he announced, "Due to circumstances which we could not control, the speaker scheduled for this program can not appear."

Dr. Parran telephoned his wife in Albany and told her that he had not been run down by a taxi, and went home by the night train. On his arrival, he called a newspaper friend, Ernest K. Lindley, and asked him what to do about having been cut off the air because he had intended to talk about syphilis.

On Lindley's advice, he sent a telegram to CBS, resigning from its health committee on education as a protest to being forbidden to use the word "syphilis" on the air. Lindley sent a copy of this telegram to the national press associations, the New York newspapers, and the radio networks, garnering maximum publicity for Dr. Parran and maximum public use of the word "syphilis."

Nevertheless, Dr. Parran had to stage a repeat performance at his first press conference as Surgeon General of the Public Health Service in Washington, D.C.

At that conference, he set forth the principle of Government responsibility for the health of the people, naming syphilis and tuberculosis as two major preventable causes of sickness and death.

A reporter for Associated Press, interrupted with: "But Dr. Parran, the AP never uses the word 'syphilis.'"

"The Associated Press will use it from now on or it probably will have to omit all the pronouncements of the Surgeon General of the Public Health Service," replied Dr. Parran.

And one more taboo vanished.

Grants-in-aid made possible by the Social Security Act went into venereal disease control in all States. That year-end, December 28 to 30, 1936, the Public Health Service held a National Conference on Venereal Disease Work in Washington, D.C. It was attended by almost 1,000 health officers, clinicians, and nurses. The Surgeon General said it "established a landmark in public health and medical history."

"The press of the Nation rendered inestimable public service by giving the transactions of this conference wide publicity," he added.

At the Venereal Disease Research Laboratory in the Staten Island Marine Hospital, Dr. John F. Mahoney established in 1937 that sulfa drugs could check gonorrhea. Ten years later, Dr. Mahoney established that penicillin was a cure for syphilis and was given the Lasker Award.

Dr. Parran increased the staff and the equipment of the Venereal Disease Clinic at Hot Springs, Arkansas, originally set up in cooperation with the National Parks Service, but at this time operated as part of the Hot Springs Transient Medical Care Center under funds from the Arkansas Works Progress Administration.

Both at Stapleton and at Hot Springs the emphasis swung from in-

duced fever treatment for syphilis and arsenicals for gonorrhea to experiments with the new so-called "wonder" drugs—the sulfas, and penicillin.

By May of 1938, Dr. Parran had generated a strong enough public opinion for Venereal Disease control to secure the passage of the National Venereal Disease Control Act by Congress, effective July 1 that year. It authorized \$3,000,000 for Federal assistance to State health systems the first year, \$5,000,000 the second, \$7,000,000 for the third, and "thereafter such amounts as may be necessary to carry out the provisions of the Act."

The project which he considered more important, promoting the medical research of the National Institute of Health, was prospering. When Luke I. Wilson died in 1937, plans for transferring this agency to the acreage given by the Wilsons in Bethesda, Maryland, were well along. The cornerstone of the Administration Building of the National Institute of Health was laid June 30, 1938, with Mrs. Luke I. Wilson, Secretary of the Treasury Henry Morgenthau, and Surgeon General Thomas Parran taking part in the ceremony. By December 1, 1938, the first three buildings on the Bethesda campus had been occupied by most of the administrative staff of Dr. Thompson's merged domain and the land gift of the Wilsons had been increased to seventy acres.

The National Cancer Institute Act was passed by Congress in 1937, officially endorsed and sponsored by every member of the Senate. This Act was also unanimously approved by the House of Representatives. It became the pattern for the many National health institutes to follow.

Up to the time of its passage, the Public Health Service had sponsored research primarily in its own laboratories. It had been, in the main, research on exotic diseases—the communicable diseases that came in from other countries such as cholera and plague; and the diseases which appeared to be peculiar to certain localities, such as pellagra and Rocky Mountain spotted fever. But now the communicable diseases were on the way out, and it was the chronic diseases, cancer, heart disease, stroke and mental illness, which were taking the toll in death and incapacity. Obviously, further research into the chronic diseases was the key to progress.

Henry C. Wallace, then Secretary of Agriculture, suggested that Government limit its own research programs and award grants-in-aid to university scientists. This principle was accepted by Senator Homer T. Bone and Representative Warren G. Magnuson, authors of the bill for the National Cancer Institute. As adopted, this legislation provided funds not only for intramural research but also for grants and fellowships to institutions outside the Public Health Service. Under it, the National Cancer Institute, (NCI), organized as a division of the NIH, could set up a trainee program to increase the ability of physicians to diagnose cancer. It also created a National Advisory Cancer Council for the selection of grantees and trainees. On an annual appropriation of about \$400,000 the NCI demonstrated the advantages of a categorical approach. By



Courtesy Public Health Service

Placing the cornerstone of the Administration Building at the National Institute of Health June 30, 1938. Left to right: Secretary of the Treasury Henry Morgenthau, Jr., Mrs. Luke I. Wilson, whose husband donated the site, and Surgeon General Thomas Parran.

concentrating on cancer, research in that field and financial contributions to it were tremendously stepped up.

Dr. Parran in June of 1939 laid the cornerstone for the building constructed for the National Cancer Institute. He told of the remarkable record of the Cancer Act in Congress.

"Such unanimity illustrates the fact that the health of the people is not controversial," said Dr. Parran.

Dr. Parran had been in office less than two months when the Rural Resettlement Administration on May 31, 1936, borrowed Dr. Ralph C.



Williams from the Public Health Service. He concentrated on medical problems of farmers until full employment resulting from World War II made rural relief from the Federal Government no longer necessary. Rexford Guy Tugwell was the administrator first selected by President Roosevelt



Courtesy National Library of Medicine, PHS

Dr. Ralph C. Williams, who when loaned by the Public Health Service to the Farm Security Administration in 1936 staged what authors Samuel Lubell and Walter Everett called "a gigantic rehearsal for health insurance." In two years, Dr. Williams peppered 150 health insurance cooperatives throughout rural America, those in the Dakotas caring for 58,000 families. The photo above was taken when Dr. Williams was serving as consultant for this book.

to deal with all the baffling financial problems of destitute farm families. The situation was serious all over the country, but was at its worst in the drought-stricken, dust-driven Dakotas, and Oklahoma.

It soon became evident that this problem was bigger than its title, and it was changed to the Farm Security Administration (FSA). Tugwell went to the Department of Agriculture and others ran FSA. Dr. Williams soon was taking airplanes to all parts of the country—and was finding out that probably the toughest financial problem of poverty-stricken farm families was how to pay the doctor's bills.

The FSA operated in a fairly simple way. A farmer in dire need went to the county office of FSA and asked for financial help—a loan. There he found the county supervisor, who corresponded with the county agent of the Department of Agriculture, and a home supervisor, who corresponded with the home demonstration agent of that Department. The only difference was that whereas the solvent farm family received only technical aid from the Department of Agriculture, the insolvent farm family was required to work out a family financial plan specific enough to make it likely that the farmer eventually would be able to repay his loan from the Government.

On the basis of very specific management plans for both farm and home set up in consultation with the two trained agents, each farm family each year borrowed enough money to "tide through." The loans averaged \$300 a year. The borrowers were called "clients."

Each FSA county supervisor had on his rolls from 100 to 300 farmers who learned from him better farming methods. The wives of the farmers learned from the home supervisor how to grow fruits and vegetables and to can them for a balanced diet, how to make clothing, how to raise poultry, and how to plan balanced meals.

Cooperatives were organized by these groups of farmers in order to pool on the use of heavy investments. There were bull rings for cattle breeding, threshing cooperatives, and food processing plants. But no way had been found to pay the physician.

In the Dakotas, Dr. Williams had surveys made which showed that about one million dollars was spent by these families for medical care in eighteen months. He set up a corporation in each of the Dakotas and had FSA funds paid directly to each corporation for the medical care of FSA clients. A physician in Bismarck was appointed medical director of the North Dakota fund; and a physician in Pierre was appointed medical director of the South Dakota fund. Every bill from a local physician was sent to the medical director in the State capital. The local medical society ruled on its reasonableness. The physicians of these States were paid on a pro rata basis according to the amount which had been allocated to the two medical corporations.

In Arkansas, a county agent, Steele T. Kennedy, set up a medical cooperative for 300 families through a central fund from FSA loans. The

county medical society decided the pro rating of the bills. This worked out so successfully that Dr. Williams had Steele Kennedy assigned to him for the purpose of having him visit the 12 regional offices of FSA in further promotion of this plan. Kennedy trained other promoters in his technique of putting up the arguments for this system as those of a plain dirt farmer.

Dr. Williams set up somewhat similar systems for medical care of migrant agricultural workers in all parts of the country.

By December 17, 1938, Samuel Lubell and Walter Everett were reporting in the *Saturday Evening Post*:

"Working with unaccustomed modesty and publicity shyness, the FSA, in effect, has staged a gigantic rehearsal for health insurance. It has brought together some 3,000 county doctors and more than 100,000 families in twenty-odd states. It has given them a chance to show what would happen if a health-insurance law were enacted for them tomorrow. And the performance has been truly startling. Friends and foes of socialized medicine alike will be surprised."

The authors added that 150 health insurance cooperatives had been peppered around the country in the last two or three years, those in the Dakotas caring for 58,000 families.

"Our newly elected Seventy-sixth Congress may be asked to decide whether this country wants some form of state medicine, but the Dakotas have it," this article said. The authors pointed out that although they had been styled cooperatives, "none of these groups really had any identity apart from the Farm Security Administration. They were founded by FSA loans, organized and managed by FSA personnel, and had as patients only FSA clients."

In answer to such arguments, Dr. Williams has always pointed out that the medical cooperatives were all handled locally and with the cooperation of county medical societies and the State Medical Association.

Dr. Parran was among those who were convinced of the feasibility of Federal medical care. He promoted compulsory health insurance bills.

When Miss Josephine Roche resigned as Assistant Secretary of the Treasury on October 5, 1937, she continued work in the Federal Government as Chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities. President Roosevelt had created this committee right after the passage of the Social Security Act in 1935 "in order that the full benefits of the varied Federal program under the Act's provisions might reach with minimum delay and maximum effectiveness the individual men, women and children for whose aid and service the program was brought into existence." Miss Roche went to Washington, D.C., from her home in Denver, Colorado, at least once each month to direct the activities of the Interdepartmental Committee until August 1940.

Surgeon General Thomas Parran became a member in October 1938. Its original members were the Chairman of the Social Security Board



which administered the Act; the Assistant Secretary of the Interior who was in charge of the health activities of the Indian Bureau; the Assistant Secretary of Labor—the Children's Bureau of that Department administered the funds for Maternal and Child Health and Crippled Children's Services; and the Under Secretary of Agriculture, the Department in charge of the medical services for the farm families who were "clients" of the Farm Security Administration.

With the idea of recommending amendments to the Social Security Act, the Interdepartmental Committee to Coordinate Health and Welfare Activities in 1947 set its Technical Committee on Medical Care to making a survey of the health and medical care work of the United States Government. Three of this five-member committee were in the Public Health Service—Dr. Joseph W. Mountin, George St. John Perrott, statistician, and Dr. Clifford E. Waller. Dr. Martha M. Eliot, of the Children's Bureau, was the Chairman. The other member was I. S. Falk, statistician of the Social Security Board. This technical committee drafted a report titled "National Health Program" which the Interdepartmental Committee accepted and sent on to President Roosevelt on February 14, 1938.

The President replied to Miss Roche on March 8, 1938: "I suggest that your Committee give consideration to the desirability of inviting at some appropriate time representatives of the interested public and of the medical and other professions, to examine the health problems in their major aspects and to discuss ways and means of dealing with these problems."

This National Health Conference was called for July 18, 19, and 20, 1938, at the Mayflower Hotel in Washington, D.C., with Miss Roche presiding as Chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities. Of the 275 persons invited, 176 came, most of them high officers of National organizations. About 90 of them spoke. Among those present and speaking were Dr. Irvin Abell, President of the American Medical Association, and Dr. Morris Fishbein, editor of its *Journal*. The entire discussion was on the proposed National Health Program and solely for the purpose of arousing National interest. No resolutions could be proposed for adoption. Every delegate had in hand a copy of the 36-page Technical Committee report describing the proposed program.

The report of the Technical Committee opened with four grave charges against health services in the United States:

Preventive health services are grossly insufficient.

Hospitals and other institutional facilities are inadequate, especially in rural areas.

One third of the population is receiving inadequate or no medical care.

An even larger fraction of the community suffers from economic burdens created by illness.

The Technical Committee proposed a National Health Program of five recommendations:

Expand public health and maternal and child health services under the Social Security Act.

Expand hospital facilities.

Expand public medical care to all the medically needy, including all NOT on relief yet unable to pay medical bills, through grants-in-aid to the States.

On two additional recommendations a lengthy gearing-in period was suggested:

Consider "a comprehensive program designed to increase and improve medical service for the entire population" to be financed "by general taxation or by specific insurance contribution from the potential beneficiaries."

Consider a disability compensation program for loss of wages during sickness.

President Roosevelt, away on a cruise, sent a message for Miss Roche to read to the conference.

His remarks closed with this paragraph: "We cannot do all at once everything that we should do. But we can advance more surely if we have before us a comprehensive, long-range program, providing for the most efficient cooperation of Federal, State and local governments, voluntary agencies, professional groups, mediums of public information and individual citizens. I hope that at the National Health Conference a chart for continuing concerted action will begin to take form."

Said Surgeon General Thomas Parran: "It is not unlikely, I think, that public health may be the next great social issue in this country . . . The social significance of this Conference lies in the fact that for the first time we may be optimistic, I think, that action will follow plans."

Said Dr. Irvin Abell, President of the AMA, "Those people who think that they can devise a carefully-controlled medical service plan which can be fitted to the varying conditions of the States, counties and cities of this country are discussing theories which no practical health administrator could possibly approve."

Said Dr. Morris Fishbein: "I have gradually become more bewildered and more amazed at the manner of approach to the problem and at the peculiar arrangements that have been made to get from the people of the United States and from the medical profession an expression of opinion in regard to the far-reaching, economy-shaking, tremendous, national program for health which has already been laid before this group."

And that famous woman physician, Dr. Alice Hamilton, of Hadlyme, Connecticut, there as a consultant to the Department of Labor, spoke up with: "Really, the Federal Government is not an invading hostile power that knows nothing about the needs of this country. After all, what is

Government? It is ourselves—ourselves organized. And surely it is more or less susceptible to our influence.”

Dr. Leslie L. Lumsden, making before he retired a broad study of tuberculosis in the Southern States with the assistance of young Dr. W. Palmer Dearing, caused one last major controversy in the Public Health Service. Particularly in Tennessee, chest X-ray films frequently showed calcification in the lungs of persons who failed to react to tuberculin. Here was a paradox. Both a positive tuberculin reaction and pulmonary calcification were time-honored signs of present and past tuberculosis. So, everyone who had or had had tuberculosis should have been a positive tuberculin reactor and the only cause of pulmonary calcification was thought to have been tuberculosis.

Dr. Lumsden in his usual vociferous way pronounced the tuberculin test worthless. Because he had often been right when others were wrong, Dr. Joseph W. Mountin, of the Public Health Service, decided that a special scientific conference on the subject should be quietly held. Important in this movement were Dr. Carroll E. Palmer, an epidemiological researcher of the Public Health Service, and Dr. Esmond R. Long, pathologist, then director of the Phipps Institute in Philadelphia. They asked Dr. T. B. McKneely, who had been studying tuberculosis in Hagerstown, Maryland, under Dr. Palmer's direction, to make arrangements for a conference in Hagerstown, where experts in tuberculosis would do and interpret tuberculin tests and chest films in school children. Dr. McKneely already had found results in Hagerstown similar to those found in Tennessee.

An urgent invitation to attend the Hagerstown Tuberculosis Conference of September 26 to October 1, 1938, was sent to Dr. Lumsden. He emphatically refused, choosing to consider the conference a reflection on the accuracy of his own work. However, two of his associates were there.

Dr. McKneely opened the conference by stating that in Hagerstown many of the chest X-ray films of negative reactors to tuberculin showed calcification; and that Dr. Lumsden and Dr. Dearing, in Tennessee, had found a rather high percentage of pulmonary lesions among their tuberculin negative individuals. “Here in Hagerstown last year the lesion incidence in tuberculin positives was 20% ; in tuberculin negatives, 13%,” he said. “These figures are sufficient to cause some alarm, and at least some reason to inquire into the matter.”

Dr. Palmer said that most tuberculosis experts who came in from the North maintained that the tuberculin test was valid, and that those who thought they were seeing calcium lesions in persons negative to that test must be misreading the X-rays or had read the tuberculin tests incorrectly. On the other hand, some experts, mostly from the South, had seen the lesions themselves and were equally sure the Northerners were wrong, and that the tuberculin test indeed might be failing.

For six days the conferees viewed X-ray films and tuberculin tests. There was no question about the results: all the experts agreed that many



tuberculin negative Hagerstown school children definitely showed pulmonary calcification in their chest films.

"The conferees were shown huge 'rocks' of calcium in the lungs of little kids five years old," recalled Dr. Carroll E. Palmer. "'Rocks' in the chests of children who had never known a sick day. . . . It just was not possible that this could be tuberculosis. It *had* to be something else."

Minutes of the Hagerstown conference, marked "Confidential, Not for Publication," are now so scarce as to be in the "Rare Book" class. Dr. Long, who owns one of them, said of this meeting, "The results went a long, long way in getting us forward on the problem." He also said that this conference "remains a legend in tuberculosis epidemiological research."

It was seven years before it was proven that the calcification in tuberculin-negative individuals was caused by histoplasmosis, a fungus disease. One of two scientists credited with individually solving the problem was Dr. Carroll E. Palmer.

On October 28, 1938, Dr. Parran opened the second "narcotic farm" at Fort Worth, Texas, actually a hospital for the treatment of narcotic addicts, with a brief address on the narcotic problem.

It started with the psychological problems leading to addiction, and closed with the Surgeon General offering guidance to all who wished to volunteer for treatment. He told them to address his office.

"The search for pleasure and the avoidance of pain are healthy human motives, constructive when properly directed and kept within their normal relation to other motives. When allowed to dominate the personality, they lead to disaster," Dr. Parran said.

But man, he added, often fails in the pursuit of these motives and may then turn on himself to get the satisfaction which a normal man gains by facing and fighting his problems in the open.

"When such a frustrated individual attempts to lift himself up by the use of narcotics," said Dr. Parran, "a drug addict is born."

He told of this country's long neglect of the addiction problem, and praised the control system set up by the Harrison Narcotic Act of 1914 and later laws.

"But errors were at first made in the treatment meted out to addicts," he said.

"The law, in effect, made criminals out of persons who were guilty only of suffering from the effects of weakness that they could not control.

"Many of them were sent to prisons where they received good treatment as prisoners but where, from the very nature of things, the weakness that formed the basis of their addiction could not be adequately treated."

Dr. Parran said that the Federal hospitals at Fort Worth, Texas, and at Lexington, Kentucky, had been built for such prisoners. He said restraint was necessary, but also added: "The restraint should be tempered by the helpful atmosphere of medical and psychiatric treatment as far

removed from prison influence as it is possible to remove it, and still retain control of the patient."

He made it clear that the same sort of meticulous scientific research that was being set up for the chronic diseases was being conducted specifically for narcotic addiction at Lexington and applied both there and in Fort Worth.

In October of 1938, Dr. Parran told the American Public Health Association: "Greater progress has been made in public health during the past two years than in any similar period in our history."

He made clear that this was partly as a result of creating jobs to lift the depression. Emergency Federal funds had been provided for sanitation, better water supplies, treatment of sewage and malaria drainage. More than three thousand health officers, nurses, laboratory directors and other technical personnel had been trained with Social Security Act funds.

Emergency Federal funds in the form of wages for persons on Works Progress Administration rolls had made possible the National Health Survey conducted by the Office of Statistical Investigations of the Public Health Service. This survey resulted in startling statistics proving that there was much more disease and death among Americans in the lower income brackets than among the well-to-do.

On January 23, 1939, President Roosevelt sent to the Congress a message titled "Health Security." It recommended "careful study by the Congress" of the "Report and Recommendations on National Health of the Interdepartmental Committee to Coordinate Health and Welfare Activities" which had been held by Miss Josephine Roche.

On February 28, 1939, Senator Robert F. Wagner, Democrat, of New York, introduced his National Health Bill, embodying the recommendations which had been discussed at the National Health Conference. It provided that all payments for medical care should be through grants-in-aid to the States on the basis of State plans.

At the close of the fiscal year, June 30, 1939, the Public Health Service was transferred to the Federal Security Agency, headed by Paul V. McNutt, created by a Reorganization Act which combined health, education, and welfare agencies of the Federal Government.

"While the Public Health Service welcomes the congenial association with organizations having related functions in the new Agency, it naturally regrets the termination of relationships which it has enjoyed in the Treasury Department," said Surgeon General Parran in the annual report of that year.

"The past 141 years have witnessed the evolution of the Service from a small organization, devoted solely to the medical care of American merchant seamen, to a national health agency, broad in scope and manifold in functions which affect directly or indirectly the health of the people."

No longer was the chief potential enemy the epidemic which could come to this country on a ship—although that danger should never be

minimized. Deaths now were chiefly caused by the chronic diseases—syphilis, tuberculosis, heart diseases, cancer, and strokes. Accidents also were increasing in importance as a cause of death. Air pollution and water pollution loomed as future hazards.

The chief weapons against these things did not lie in our connections with other countries. They lay in Federal relations with our own States, and with research into the chronic diseases. Health grants which, under a formula, gave larger grants to the poorer States were made possible by the Social Security Act. The National Cancer Act was pointing the way to categorical research grants through Congressional appropriations distributed largely on deliberations by National Advisory Boards.

Another Federal agency included under the new Federal Security Agency was the Children's Bureau, charged with administering two Social Security Act titles which were largely conducted in the States under the public health agency—maternal and child health services and crippled children's services. Soon added was the Food and Drug Administration, formerly of the Department of Agriculture, which certified for commercial use the new synthetic "wonder" drugs which were becoming so important to public health.

Surgeon General Parran continued to operate his prodigious public health plans from the new building at Nineteenth Street and Constitution Avenue.

The Public Health Service campaign against tuberculosis continued to gain momentum under Surgeon General Parran. Much of its success was due to a zealous young medical officer, Dr. Herman E. Hilleboe.

In June 1939, Surgeon General Parran and Dr. Carroll E. Palmer persuaded Dr. Hilleboe, who headed the tuberculosis and crippled children's programs of Minnesota to take up tuberculosis research under Dr. Palmer at the National Institute of Health. A part of the understanding was that Dr. Hilleboe would have three months in Europe to study tuberculosis control and three months to finish up his work in Minnesota. On July 1, Dr. Hilleboe was commissioned a senior assistant surgeon in the Public Health Service and left for Europe.

"In Germany, I became interested in a 35 millimeter camera attached to an X-ray machine made by the Siemens Corporation for Dr. D'Abreu in Brazil," Dr. Hilleboe said. "It was called a 'Schimmerbild' in Germany and an 'Abreuograph' in Brazil. Abreu was the first one to use such equipment for detecting pulmonary tuberculosis.

"When I returned to Minnesota late in September, I got Dr. Palmer interested in the photofluorograph ('PFG' as we call it) and we prepared to build a machine because we didn't have the money to buy one. And besides, Germany went to war on September first. I barely got out of Germany on August 23.

"In November 1939, Harold E. Stassen was elected Governor of



Minnesota. We had both graduated from the University of Minnesota in 1929, and had been on a rifle team together. Governor Stassen insisted that I stay on in Minnesota as chief of medical services in his newly-created Department of Social Welfare. I wanted to go to Washington, and Dr. Palmer wanted me to come, but Governor Stassen talked Surgeon General Parran out of my going. I was put on leave without pay by the Public Health Service, assigned to Governor Stassen."

Dr. Hilleboe recounted how this unforeseen delay made possible a major forward step in the anti-tuberculosis program of the Public Health Service.

"Dr. Palmer assigned me two of his assistants, Dr. S. Randolph Haas and Willis Beasley to work on development of a photofluorograph. We used the Anoka State Hospital as our field station and the thousand mental patients there as our 'guinea pigs.' Tuberculosis was rampant so we had plenty of material. The three of us developed a PFG over the next couple of years, proved its value as a TB case-finding device, and reported on our findings."

That was the machine which later made case-finding in tuberculosis one of the triumphs of Dr. Thomas Parran as Surgeon General.

Surgeon General Parran was effecting the reorganization into the Federal Security Agency at the same time that he was keying in with the National program of preparedness for World War II. Adolph Hitler, who had assumed absolute power in Germany, had taken over Austria with the Anschluss of March 11 and 12, 1938. Czechoslovakia soon ceased to exist, and Hitler started World War II with his march into Poland September 1, 1939.

Well in advance of the take-over of Poland, far-seeing Surgeon General Parran had tried to promote by general accord an act of Congress that officers of the Public Health Service be given the same rights, privileges and benefits conferred on military officers in time of war. In August of 1939, the Surgeon General of the Army refused to endorse this proposal of Dr. Parran on the grounds that it would not be legally feasible to incorporate the Public Health Service with the Medical Department of the Army.

On January 30, 1940, with war raging overseas, Secretary of War Harry H. Woodring formally requested the cooperation of the Public Health Service in scheduled military maneuvers, on the same basis that similar cooperation had been given during World War I under the Executive Order of April 3, 1917.

Said Woodring:

"It is desired that the U.S. Public Health Service, operating under the authority of existing laws and using its own resources, cooperate with the Army in safeguarding the health of military personnel by suitable measures of extra-military area sanitation in connection with the present concentration of troops in the South. This

cooperation is particularly desired at this time in regard to the increase in venereal disease which has been traced directly to organized vice in adjacent municipalities. Other matters of environmental sanitation will arise during the course of the coming maneuvers in which the U.S. Public Health Service can be of great assistance to the Army."

This proposal was accepted by Federal Security Administrator Paul V. McNutt, and established what was to be the official relationship of the Public Health Service and the Army throughout World War II.

In June of 1940, President Roosevelt appointed a Council of National Defense with an Advisory Commission which included Miss Harriet W. Elliott for Health and Social Welfare. Miss Elliott, former dean of women of the University of North Carolina, recommended to the President a special advisory council to deal with health and medical activities on the defense program. At the same time she requested Dr. Parran to present a plan for the functioning of such a council.

His plan included: (1) Mobilization of professional personnel; (2) Provision of medical material; (3) Supplying health and medical services; (4) Industrial hygiene; (5) Medical research; (6) Control of specific diseases of military importance; (7) Medical education and training; (8) Improvement of general health and fitness.

At the first meeting of the health and medical committee, a subcommittee on nurses was appointed. This subcommittee at its first meeting asked the Public Health Service to conduct a nationwide inventory of registered nurses, under the direction of Miss Pearl McIver, Chief of the Public Health Service's Nursing Section.

The nurse inventory was started October 1, 1940, and was completed by January 1, 1941.

Thus the first National roster of professional nurses was available well in advance of actual war. The data revealed a serious shortage of nurses. The subcommittee on nursing recommended a nationwide program to bring more student nurses into training, to provide refresher courses for inactive nurses, and postgraduate training for advanced nursing skills. The Health and Medical Committee was abolished November 6, 1941, and was replaced by a procurement and assignment service which later operated under the War Manpower Commission administered by Paul V. McNutt.

Under the plan drawn up by Dr. Parran, a survey was made of strategic drugs which might be cut off by war, notably opium and quinine. Reserve stocks of opium were built up to meet a three-year demand. On recommendation of the Public Health Service, the Army-Navy Munitions Board bought a large supply of quinine sulfate to insure quinine for treatment of malaria. A special expert surveyed the potential supplies of cinchona bark, from which quinine is made, and which usually came from the Dutch East Indies. It was found that less than a half year's supply could be secured from all of South America. The Rockefeller Foundation

aided in securing the manufacture of 150,000 doses of yellow fever vaccine as the Public Health Service prepared for large-scale manufacture of this vaccine at the Rocky Mountain Laboratory at Hamilton, Montana. A new laboratory was completed there.

But peacetime objectives were not forgotten. President Roosevelt, on January 30, 1940, sent to Congress a program for the construction of small hospitals in needy areas of the country, especially rural areas.

"In many areas present hospital facilities are almost nonexistent. The most elementary health needs are not being met," this message said. He envisaged that these hospitals would provide laboratory facilities for local physicians and accommodations for local health departments. He estimated that by using WPA labor, the cost of building and equipping a 100-bed rural hospital could be kept down to between \$150,000 and \$200,000.

Down at Carville, Louisiana, on December 9, 1940, Dr. Guy H. Faget, medical officer in charge, wrote to Dr. E. A. Sharp, Director of Clinical Investigation for the Parke-Davis drug company in Detroit to ask about a new sulfone derivative named "Promin."

Dr. Faget had tested some of the new synthetic drugs on tuberculosis while he was assigned to the tuberculosis hospital of the Public Health Service in Fort Stanton, New Mexico. While doing this work, with no notable success, he had become deeply interested in leprosy, and succeeded in obtaining a transfer to Carville, Louisiana. In his letter to Dr. Sharp, Dr. Faget told of having read that an experiment at the Mayo Clinic on tuberculosis in guinea pigs had shown the best results with a preparation named Promin.

"Will you please inform me of any other experimental work done with this drug in acid-fast diseases to determine its value, as well as its relative toxicity?" Dr. Faget asked.

Dr. Sharp replied that Dr. E. V. Cowdry, a PHS consultant, was carrying on experiments in rat leprosy with Promin at Washington University, St. Louis, Missouri. Dr. Faget wrote to Dr. Cowdry, who reported that Promin had reduced the size of leprosy nodules in rats and that the survival time of the treated rats was greater.

On March 10, 1941, Dr. Faget, disregarding conservative counselling, started the human research which would revolutionize the treatment of leprosy throughout the world. He had six volunteers injected with Promin as a start of regular treatments with that drug. A whole new life was coming to Carville in health and in the habitat. That year a photograph in the Surgeon General's annual report showed a large-scale leprosarium rebuilding program well along.

On September 16, 1940, President Roosevelt signed the Selective Service Act which drafted men for military service as a matter of defense. Blood tests for venereal disease were performed at the time of registration, and became the largest case-finding program ever conducted.

Surgeon General Parran made arrangements whereby a liaison officer



of the Public Health Service had a desk in the office of the Army Surgeon in each of the nine corps area.

It was the job of this Public Health Service officer to oversee food inspection, sewage disposal, and the campaigns against venereal disease and tuberculosis around each military camp. He was also authorized to call on State and local health officials for any aid he needed for community sanitation. An exceedingly thorough survey was made of each camp area.

Dr. Parran had gone to England to study health problems in war, particularly in the civil defense and air warfare fields. He returned to launch aviation experiments at the National Institute of Health as well as a nationwide nutrition campaign. Many British pilots had died from drastic air-pressure and oxygen-content changes encountered in fast climbing. Dr. Parran, in collaboration with the Navy, installed at NIH an airtight metal altitude chamber in which atmospheric changes could be brought about artificially. Sheep were subjected to such changes. Ascents at any rate up to 18,000 feet were simulated. Temperature changes were also tested. An oxygen-supply apparatus for high altitude flying was developed. Heated and unheated clothing for pilots received careful appraisals. Confidential reports were made to the Navy.

The industrial hygiene systems which Dr. Parran had started in the Northern States now became the pattern for the Nationwide defense industries—the male “army in overalls” and the women workers in slacks.

Proper nutrition was preached by the Public Health Service for the general public as well as for soldier and war worker. England already had “fortified” white bread with Vitamin B1 and calcium. In the nutrition campaign of 1941, this country “enriched” its bread with three vitamins of the B Complex, thiamin chloride, riboflavin, and nicotinic acid—and iron. Added nutrition was provided for the needy by low cost milk and a food stamp plan.

When the gold vaults of the Treasury Department were emptied to Fort Knox, Dr. Parran arranged to use them as storage space for enough quinine and opium to last for eighteen months, so that soldiers could have medicine against malaria and pain relievers after wounds. He set scientists at the National Institute of Health to work at trying to find synthetic substitutes for these and other drugs.

Now the heavy construction phase of the New Deal program, the Federal Works Agency under Secretary of the Interior Harold L. Ickes, came to the front in war preparations. The Community Facilities Act passed on June 28, 1941, popularly called the Lanham Act, made \$150,000,000 available to the FWA “to provide means by which public works may be acquired, maintained, and operated . . . in any area or facility where the President finds an acute shortage of public works necessary to the health, safety, or welfare of persons engaged in national defense activities.”

Included in these public works were waterworks, water purification plants, sewage plants, garbage disposal plants, public sanitary facilities and hospitals. All projects relating to health were referred to the Public Health Service. Surgeon General Parran proudly stated in his *1941 Annual Report* that it had been "possible in almost every case to clear an application within 24 hours."

The Public Health Service already was largely converted to war when this country was catapulted into the conflict by the Japanese attack on Pearl Harbor of December 7, 1941.

Dr. Parran had, in fact, started his post-war planning before Pearl Harbor. On September 19, 1941, he appointed a small PHS planning committee to collaborate with the Public Works Administration in developing a "shelf" of worthwhile health facilities to be constructed at the end of the emergency. His aim was to meet urgent needs for hospitals, health centers and sanitation facilities and at the same time to provide jobs during a possible post-war slump. The chairman of this committee was George St. John Perrott, a brother-in-law of Edgar Sydenstricker and similarly interested in creative statistics, who headed the Public Health Methods Division. The other two members were John K. Hoskins, a sanitary engineer, and Dr. Vane M. Hoge, who turned out to have an extraordinary ability for hospital planning.

Early in the New Deal the far-seeing Dr. Joseph W. Mountin got Dr. Hoge interested in hospital construction and administration. When the first School of Hospital Administration opened in Chicago in 1934, Dr. Mountin saw in it a special opportunity to train a promising young officer of the Public Health Service. Thus it was that Dr. Hoge entered its second class held in 1935-36. When he had completed the course, he was attached to the Public Health Methods Division, then in the National Institute of Health, to make hospital surveys.

By the time the United States started to mobilize in 1940, Dr. Hoge had made intensive surveys of all defense areas showing that there were not nearly enough hospitals around the Army camps and munitions factories. The Lanham Act accordingly provided for the building of hospitals by the Federal Works Agency. However, Dr. Vane Hoge, of the Public Health Service, was put in charge of the entire project.

"I had sole jurisdiction—almost a dictator's powers," said Dr. Hoge. "All the while we were at war, hospitals, all of them one-story, frame buildings, were constructed in the communities around the camps and war industries. If the community put up part of the funds, and the Government the rest, the hospital was turned over to the community to run. If the community couldn't put up funds, the Government retained the title."

One of the hospitals built by Lanham Act funds and run by the community was the Suburban Hospital of Bethesda, Maryland, on land that adjoins the National Institutes of Health.





## Chapter 17:

### PUBLIC HEALTH HELPS WIN WORLD WAR TWO

Surgeon General Thomas Parran

1936-1948

#### (Part Two)

The disastrous Japanese attack on Pearl Harbor plunged the United States into World War II. A thousand men were sent to the bottom of the sea on the battleship *Arizona* that Sunday in Hawaii. Hundreds more went down on the battleship *Oklahoma*, pounding on the walls of compartments from which they could not escape as rescuers took from the ship the men in the compartments that were reachable. So much of the Pacific fleet was destroyed that day that the capture of the Philippines by Japan was inevitable. The full scope of the loss was kept secret from the public by the censorship which thereafter sealed all information which might be of use to the enemy.

It was all-out war, Atlantic and Pacific, Europe and Asia. All material was channeled into the proper manufacturing plants by the War Production Board. Prices were controlled by the Office of Price Administration. Food, clothing, and gasoline were strictly rationed. As a symbol to the American people that the country was at war, President Roosevelt left the White House unpainted until the war was over. Blackout curtains were pulled at night over the big old White House windows, a precaution repeated in private homes in bombing distance from all coasts. Civilian defense teams were organized for action if bombs fell. The Red Cross conducted courses in First Aid.

Prepared for its varied tasks by Surgeon General Thomas Parran, the Public Health Service took part in every phase of the war.

At the time of the attack on Pearl Harbor, the Public Health Service had a mission of six medical officers in the Philippine Islands, headed by Dr. Howard F. Smith. At the request of General Douglas MacArthur, military commander there, Dr. Thomas Parran made Dr. Smith medical aide to General MacArthur. Dr. Smith went with General MacArthur to Borneo, New Guinea, and Australia. The other five medical officers on duty in the Philippines remained there and were captured by the Japanese. Two of them, Dr. Floyd W. Hawk and Dr. Fred Black died while prisoners.

The Public Health Service provided medical officers for all Coast Guard ships and furnished medical care on land to the entire personnel of the Coast Guard. As German submarines attacked the ships of this country, Coast Guard patients in Marine and contract hospitals increased from 7,082 in 1941, to 16,197 in 1942, more than doubling in one year. Com-

plete medical service was also furnished to the War Shipping Administration by the Public Health Service.

Medical officers and public health engineers were assigned all over the world by Surgeon General Parran. They supervised epidemic control in North Africa at the request of General Dwight D. Eisenhower. They served with the army in India under the command of General Joseph W. Stilwell. They supervised the sanitation work on the Alaska and Pan-American highways.

On the home front, Surgeon General Parran operated health campaigns through the States Relations Division, which he had renamed on July 1, 1941, with Assistant Surgeon General Joseph W. Mountin at its head. It had been the Domestic Quarantine Division, charged with preventing the spread of diseases from State to State, a duty which was continued as it took on new tasks. As the war started, Congress appropriated an added \$4,470,000 to assist State and local health authorities in performing emergency tasks. Of this, \$2,045,560 was allocated to general health and sanitation; \$2,142,860 to malaria control in war areas; \$250,000 to industrial hygiene; and \$31,500 to the pay of commissioned officers.

Because of his greatly increased activities, Dr. Mountin was moved into a newly-leased headquarters, a massive red brick structure built as a residence by James G. Blaine at 2000 Massachusetts Avenue, N.W. Soon it was teeming from basement to garret with specialists helping the States organize wartime health activities.

Dr. Herman E. Hilleboe, who had been developing a tuberculosis case-finding device for the Public Health Service while serving as Medical Director of the Minnesota Department of Social Welfare, under Governor Harold E. Stassen, told of his own introduction to this spot.

"In December 1941, after Pearl Harbor, Governor Stassen called me in to tell me he was going to resign to join the Navy," said Dr. Hilleboe. "He said if I still wanted to go to Washington to work it was all right with him. He was very interested in our tuberculosis work because he got tuberculosis after finishing law school not long before he ran for governor.

"The next month I was in Washington, assigned to Dr. Joseph W. Mountin to develop a TB control program for which there was no executive authority at that time."

Dr. Hilleboe had moved out of a handsome executive suite in St. Paul, Minnesota. He was installed by Dr. Mountin in a second-floor sun porch of the Blaine Building. His own description ran: "no secretary, no privacy, no room to work, no nothing . . . just myself, a desk and chair, and four walls."

There Dr. Hilleboe succeeded in interesting the Westinghouse X-ray Corporation in developing a commercial model of the machine for case-finding in tuberculosis on which he had been working in Minnesota. He was also concerned with obtaining legal authority from Congress to set up a Tuberculosis Control Division to use such machines.

"With the leadership of Dr. Kendall Emerson, of the National Tuberculosis Association, and his able assistant Elizabeth Stoltenkamp, we built up a tremendous pressure group among persons throughout the United States who were interested in tuberculosis," said Dr. Hilleboe.

"Every member of Congress was bombarded with letters and visitations demanding the establishing of a Division of Tuberculosis Control in the Public Health Service."

The Public Health Service provided the Emergency Medical Service of the Office of Civilian Defense with its professional staff. When Fiorello La Guardia was appointed the director of that Office, he asked his personal physician, Dr. George Baehr, internist at Mount Sinai Hospital and a member of the New York State Health Council, to take charge of the Office of Civilian Defense Medical Service. Dr. Baehr said he would consent only if Surgeon General Thomas Parran and the Public Health Service would cooperate with him. Dr. Parran commissioned Dr. Baehr as a reserve officer in the Public Health Service and assigned Dr. W. Palmer Dearing, a seasoned officer on his own staff, as Assistant to Dr. Baehr in charge of the Medical Service at the OCD headquarters, Dupont Circle Building, Washington, D.C.

After a year of war, Surgeon General Parran testified on Capitol Hill: "We have recruited and assigned medical, nursing, and engineering personnel which staffs the Emergency Medical Services of the Office of Civilian Defense. In addition to a chief medical officer and staff in Washington, medical and engineer officers are on duty in all the service commands, and in a number of the coastal States. A part of this work has involved the organization of emergency base hospitals which are available for the use of civilians in the event of enemy action or severe catastrophe."

Dr. Dearing now recalls that many men who became leaders in the Public Health Service were recruited to take part in medical Civilian Defense during World War II. Among them were Dr. Henry van Zile Hyde, a pioneer of the Office of International Health, and Dr. Jack Masur, long the Director of the Clinical Center of the National Institutes of Health.

Civilian Defense in this country was modelled on the British system of survival under intense bombing—blackouts, underground shelters, rescue teams after attacks. The Office of Civilian Defense sent teams overseas to learn this system and the British Ministry of Health sent experts here. The only difficulty was definite differences between this country and Great Britain. Officials of OCD's Emergency Medical Service were delayed for months in obtaining medical equipment by an elaborate procurement system conducted through Army depots. The Army took everything it needed before turning any supplies over to Civilian Defense. There were special problems such as that of narcotics, which cropped up late in 1941 with the attack on Pearl Harbor.

Surgeon General Thomas Parran attended a conference shortly before Pearl Harbor with Sir Wilson Jameson, Chief Medical Officer of the



British Ministry of Health, at the Office of Civilian Defense. Sir Wilson there made clear how important morphine would be to Civilian Defense if enemy bombs should fall on this country. He said that seriously injured casualties should be evacuated to hospitals without delay. No shock treatments should be given at the place of injury or at casualty stations. He laid down the rule that morphine was "the one standby." He said that "casualties to be evacuated should receive a narcotizing dose and be sent on their way."

Providing morphine to the civilian defense teams was a matter simple enough in England where every physician has easy access to narcotic drugs. Under the stiff narcotics laws of this country, Harry Jacob Anslinger, United States Commissioner of Narcotics, made clear to the Office of Civilian Defense, narcotics could not be purchased and distributed in the field team kits without safeguards for their handling and storage. He was assured by the Medical Division of the Office of Civilian Defense that all morphine would be purchased through the Office of the Surgeon General of the Army to be allocated to communities as part of the supplies furnished by the Office of Civilian Defense. The drug would be administered only by physicians and the amounts used would be recorded on identification tags and in casualty record books.

Mr. Anslinger pointed out that narcotics could not be stored in the same manner as other supplies. The morphine must be kept under lock and key in hospitals. Information on this procedure was sent to Regional Medical Officers of OCD in a memorandum dated December 15, 1941, about a week after Pearl Harbor.

The State of Massachusetts immediately protested that its Emergency Medical Service was not based on hospitals. Commissioner Anslinger accompanied an OCD medical officer to Boston where he refused to sanction storage of morphine in the medical depots of the Massachusetts Emergency Medical Service, but permitted its storage in police stations with arrangements for its distribution to especially designated physicians.

The subject of the distribution of morphine became more and more entangled in red tape. Should it be by tablets or by needle from syrettes? The War Production Board said it could not spare steel for needles. At one point, the morphine was to be stored in vaults in district offices of the Treasury Department. On another occasion, a private drug firm was to have complete charge of its distribution to the hospitals as a specially-designated warehouse of OCD. Someone complained this firm was charging too much, and a second firm was chosen. The OCD morphine still had not been distributed when the Japanese captured the Aleutian Islands in the summer of 1942, and Alaska took the position it was absolutely necessary to have morphine stocks to be used after possible bombings. An agreement was reached with Commissioner Anslinger that morphine supplies purchased with local funds might be stored in hospitals in excess of the hospitals' own normal supply. So that morphine could not be stock-

piled, the Commissioner of Narcotics had limited all hospitals to a normal supply.

In the fall of 1943, after the Japanese had captured the Aleutian Islands, two additional Public Health District Offices were created under the States Relations Division in the Territories (now States) of Hawaii and Alaska. District Office No. 10 was established in Honolulu, Hawaii, under the direction of Medical Director Robert H. Onstott, and District Office No. 11 was established in Juneau, Alaska, under the direction of Medical Director Edgar W. Norris. When the war was over, these offices were closed and their duties and functions reverted to Public Health District Office No. 9 with headquarters in San Francisco, California.

February 1, 1942, was for Surgeon General Parran a major marker of the full swing of war. On that day, President Franklin D. Roosevelt issued an executive order that the headquarters building of the Public Health Service at Nineteenth and Constitution Avenue be turned over to the United Nations Chiefs of Staff for their use during the war. Dr. Parran had to operate from a group of six buildings of the old Naval Hospital until a new temporary building could be constructed for him on the grounds of the National Institute of Health. The Naval Hospital had been moved to Bethesda, its grounds being across Wisconsin Avenue from the National Institute of Health.

On that same first day of February, Surgeon General Parran called Assistant Surgeon General Lewis R. Thompson, Director of the National Institute of Health, into duty in his own office as Chief Inspection Officer to help him handle the fast-changing situation. Dr. Rolla Eugene Dyer, who had been Assistant Director of the National Institute of Health, was promoted by Dr. Parran to the position of Director. Except for continuing the most important basic research, such as that in cancer, Dr. Dyer was under instruction to conduct only studies necessitated by war.

A conspicuous site on the NIH grounds—across Wisconsin Avenue from the new Naval Hospital—was selected for the wartime headquarters of the Public Health Service. The theory of Dr. Parran was that this temporary building, which necessarily would be ugly, would be torn down sooner if it was where it had to be noticed. The move to this new suburban building took place at the end of May 1942.

After Pearl Harbor a mood of antagonism to, and fear of uprisings from, Japanese-Americans pervaded the West Coast. A military decision was made to evacuate to detention camps all persons having as much as one-fourth Japanese blood. On February 1, 1942, President Roosevelt signed an executive order authorizing the Commanding General of the Western Division Command to use any Federal agency to assist in the evacuation.

Dr. Walter T. Harrison, the Public Health Service Medical Director in charge at San Francisco was called on to superintend medical services for the evacuees in the assembly centers until they were delivered to the



Courtesy National Library of Medicine, PHS

Dr. Rolla Eugene Dyer, promoted to be Director of the National Institute of Health in February 1942, with instructions to conduct only studies necessitated by World War II except for the most essential basic research.

relocation centers then being established. This put the Public Health Service in charge of about 110,000 persons of all ages, and both sexes. Included were pregnant women, invalids, children with contagious diseases, and some cases of insanity and senility.

The Service speedily enlisted the cooperation of State, municipal, and county health departments and of private physicians in California, Washington, and Oregon.



At Santa Anita and Pomona, in California, each with 12,000 to 15,000 evacuees, the Public Health Service assigned to the county health department a physician, two public health nurses, and a sanitarian, all of whom had their offices in the centers.

Under the supervision of the county health officer, Japanese physicians vaccinated the entire population of each center against smallpox and immunized against typhoid. No serious epidemics occurred in the centers. The peak of any disease outbreak was 58 cases of measles among the children at Santa Anita.

A physical examination was made of each evacuee before leaving for an assembly center. Women well along in pregnancy were admitted to a hospital or nursing home until they and their babies were well enough to travel. Children with communicable diseases were placed in hospitals until well. Many suffering from tuberculosis were put in sanitariums. Pullman car space was provided for the senile. A physician and a nurse accompanied each train or bus convoy. If any became ill enroute, they were sent to hospitals.

At the four largest assembly centers, Manzanar, Santa Anita, and Pomona, California, and Puyallup, Washington, the Public Health Service set up hospitals and staffed them with Japanese physicians, dentists, and nurses. The Service also arranged for specialists from nearby counties to serve as consultants.

When the relocation camps were ready to open, the Service again furnished a physician and a nurse for each of the 225 trains required to make the transfer from assembly center to the camps where the 110,000 Japanese-Americans remained until war ended.

At the close of the war, a study of the entire Public Health Service operation in wartime was made by Elizabeth Pritchard, an experienced and able writer in the Office of the Surgeon General. Mrs. Pritchard said there had been delays in the construction and equipment of the hospitals in the assembly centers, and that it was many weeks before enough supplies and equipment were delivered to them.

"County health departments and county hospitals frequently saved the situation by lending such essential items as hypodermic needles and surgical instruments," she said.

One of the most pressing problems of World War II was the shortage of nurses. During the depression, large numbers of nurses had been among the unemployed. Surgeon General Thomas Parran had called in a few nurse consultants to help the States make the best use of the nurses on WPA rolls. They were under the direction of Senior Nurse Officer Pearl McIver, who had served with Dr. Parran when he was assigned to rural sanitation in Missouri.

Representative Frances P. Bolton, of Ohio, who had championed the Army School of Nursing in World War I, accurately foresaw the nurse shortage. She was successful in having an item for nurse education in-

cluded in an Appropriations Act which became effective July 1, 1941. The amount was \$1,200,000 for nurse education plus \$50,000 for administration under the Surgeon General of the Public Health Service. It provided courses for student nurses, advanced courses for graduate nurses, and refresher courses for inactive nurses.

Surgeon General Parran immediately set up a nurse education unit under Senior Nurse Officer Pearl McIver, with three outstanding nurses as her consultants, Margaret Arnstein, of the New York Public Health Service; Lucile Petry, of the faculty of the University of Minnesota; and Eugenia Kennedy Spaulding, of the faculty of Catholic University. The program was so successful that a larger appropriation was provided the second year.

About \$4,500,000 was spent on nurse education in the two years. Enrollments were increased by about 13,000 students. Of about 4,200 graduate nurses who secured advanced training, approximately half were public health nurses. More than 2,000 inactive nurses took refresher courses the first year—and less than 1,000 the second. Nurse leaders decided the demand had become so great the inactive nurses just went back to duty without further training.

The National Institute of Health gave a special orientation course to 163 public health nurses assigned to official agencies in 34 States, the District of Columbia, Alaska, and Puerto Rico. Many of them would go into trailer towns which had sprung up overnight due to new war factories. Others would work on special "rapid treatment" venereal disease projects.

In March of 1943, Congress voted and President Roosevelt signed the Emergency Maternity and Infant Care Act—EMIC for short. Under this Act, administered by the Children's Bureau, the Federal Government paid the cost of medical, hospital, and nursing care for wives and babies of men in the four lowest pay grades of the Armed Forces. The babies of these servicemen were eligible for medical, nursing, and hospital care if sick at any time during their first year of life. EMIC intensified the nurse shortage.

This gigantic experiment in maternity and infant care, highly successful as a health measure, and also in bringing on a population explosion, was approved by Congress and the country as a morale builder for the servicemen. They could go overseas into battle, content that their wives and babies were being cared for. The EMIC program caused State health departments to work long hours to plan the assistance needed. It filled maternity wards of Public Health Service and military as well as civilian hospitals with mothers and babies. Some servicemen had as many as three children with all obstetrical costs paid by EMIC before the program ended on June 3, 1949. The EMIC program caused modern cost accounting in hospitals.

During World War II the scarcity of hospital beds speeded the

acceptance of a new principle of physical rehabilitation through early exercise. First applied to the wounded, this principle was found to be true for mothers who soon were up and out of their hospital beds.

An increasing number of women and children were admitted to Marine Hospitals. The Public Health Service Hospital at Stapleton, Staten Island, New York set up a small obstetrical research service, with Dr. Waldo B. Edwards in charge. There a method for relieving the pain of childbirth—continuous caudal analgesia—was developed by two young medical officers. These physicians were Dr. Robert A. Hingson, whose wife was at the time in the early stages of her first pregnancy, and Dr. James L. Southworth. Dr. Parran's report on this method ran:

"It is an application of the principles of local anesthesia in that it is essentially a process whereby the larger nerves supplying the part of the body involved remain anesthetized throughout the period of painful labor. Mothers remain completely conscious throughout, and, having experienced it, are most enthusiastic. The baby being born is not at all affected. Physicians who have witnessed demonstrations are very greatly impressed. The technique is somewhat difficult and requires a special ability on the part of the physician."

Caudal analgesia was soon instituted all over the country. At the Marine Hospital in Seattle, Washington, Dr. Buell S. Bindschedler, who had served at Stapleton with Doctors Hingson and Edwards, started caudal analgesia. There an obstetrical-gynecological service was established in 1943 in which about 800 babies were born in three years, most of them to Coast Guard personnel, under the EMIC plan.

The Seattle hospital on top of Beacon Hill already had gained in the war the distinction of being called "the best blacked-out building on the West Coast." It was a conspicuous landmark, then and now. Ships used it for guidance. Today those who go up to eat in the revolving dining room on top of Seattle's "Space Needle" use it to count the revolutions. Today's observers wonder how Civil Defense volunteer teams of World War II ever managed to black it out.

By May 6, 1943, Surgeon General Parran stated in testimony before an Appropriations Committee hearing:

"It is safe to say that 90 percent of the Public Health Service's resources in manpower, material, and money have been channeled into direct war work. For example, virtually all researches of the National Institute of Health have been turned to new problems arising from the conditions of global war. The few remaining studies are essential to the preservation of our continuing search for knowledge upon the diseases of mankind. Cancer studies fall in this category."

On the venereal disease campaign, Surgeon General Parran reported a 300 percent rise in the number of clinics over the year 1938. During the year just passed, he said, there had been a 20 percent increase in the num-



ber of patients admitted to clinics. Redlight districts in more than 300 communities had been closed that year. This had been done even though the May Act, which made prostitution a Federal offense in areas designated by the Secretary of War or Navy, had been invoked only two times—in 27 counties of Tennessee and in 12 counties of North Carolina. Stringent prostitution control laws had been passed in Georgia, South Carolina, and Mississippi.

“With the aid of additional funds furnished last year by the Congress, many communities caught in the war boom with absolutely no defense against venereal disease have been aided. Of the many thousands of men rejected for military service on account of venereal disease infection, 64 percent have been brought under treatment,” he said.

“For the treatment and rehabilitation of women spreading venereal disease, rapid treatment centers have been established. They are financed jointly by Lanham Act and Public Health Service funds . . . Treatment includes the new intensive methods for treating syphilis and the use of sulfa drugs for gonorrhea.”

The rapid treatment for syphilis, varying in time from one day to six weeks, was with the use of penicillin.

There was a triumphant note in the Surgeon General’s report on malaria control.

“We have created a zone essentially free of malaria mosquitoes around every military camp and every war industry,” he said. “It is gratifying to report that, as a result of these control activities, during 1942, the Army experienced the lowest malaria rate in its history—0.6 per 1,000 men per year.”

This remarkable record was due to a campaign called Malaria Control in War Areas, which was shortened to its initials, MCWA, and was under the direction of that seasoned medical officer, Dr. Louis L. Williams, Jr., who also had been in the malaria control campaigns of World War I.

President Roosevelt had closed out two programs providing jobs for the unemployed, the Works Progress Administration and the National Youth Administration, in December of 1942. In Army cantonment and war industry areas, the WPA laborers who were engaged in such obviously war-necessary work as malaria control projects were kept at that tremendous task, paid by Lanham Act funds. As of January 1, 1943, the Public Health Service employed, with Lanham Act funds, 4,340 persons of whom more than 3,000 were laborers in malaria control work, supervised by physicians, engineers, and entomologists.

Dr. Louis L. Williams, Jr., who had started specializing in mosquito-borne diseases as a young medical officer under the direction of Dr. Henry Rose Carter, was then on duty as the Public Health Service liaison officer to the largest and most malaria-ridden Army training station, the Fourth Corps Area with headquarters in Atlanta, Georgia.

Dr. Joseph W. Mountin, whose State Relations Division had been changed to the Bureau of State Services under which the new MCWA operated, had developed the "team" philosophy on malaria control. He contended that teams, each including a physician, an engineer, and a biologist, should study the parasites, the vector, and the disease while using old methods and devising new ones to eliminate it. Dr. Williams put this cooperative plan into operation in his broad, and lasting, organization of the MCWA.

Dr. Williams said that technological advances between the wars had increased the malaria control problem, but had also made success possible.

In World War I, he recalled, it was only necessary to make mosquito-free the training camp and a radius of one mile from the camp—the distance that the *Anopheles*, the malaria mosquito, could fly—and that a man on leave would be likely to walk.

"But automobiles had arrived on the American highways in large numbers by World War II," said Dr. Williams. "The soldier on leave was limited only by the number of miles he could thumb a ride and get back to camp by the time his leave expired. As a practical matter that meant a radius of about thirty miles from camp that had to be made mosquito-free."

However, there had grown up between the wars new spraying techniques. In World War I spraying was done by a man carrying a knapsack hand spray. Now there were power machines to do the spraying.

"Between the wars, too, Marshall A. Barber, bacteriologist and parasitologist of the Public Health Service, with Theodore Hayne, developed Paris green as a larvicide," Dr. Williams said. "It was so dry that a small amount could be swiftly blown by the wind over a large area of water. It was so light it didn't sink for two hours. The mosquito larva, which in feeding turns its face 180 degrees on the surface of the water, was sure to get a lethal dose. And it lowered the cost of mosquito control so much that even a little town could afford Paris green with one or two laborers to dust once a week."

Dr. Williams recalled that he had been confronted with the terrific problem of getting enough cars and trucks in wartime to distribute the larvicide and the laborers to drain the swamps. On this front, he said, what seemed to him like a miracle happened.

"I was still a liaison officer waiting to go to MCWA when into my office one day walked a young Public Health Service engineer, Mark Hollis," he said. "He had come to Atlanta for the sole purpose of talking to me. He had heard in Washington that the construction of Camp Blanding, below Jacksonville, Florida, would soon be completed and that the between 800 and 900 cars working on it would be freed for other operations.

"After we talked, he went right on to Jacksonville. He asked several persons in the State Health Department who they knew in the Army and

got acquainted with the contractors. Eventually an expert volunteered to pick out for him every good car as it came off the job and slide it off into an assembly lot. The State Health Officer arranged with the Road Commissioner to convoy these cars, furnishing the drivers, protected by twenty or thirty State traffic police, into the Jacksonville quarantine station. It was a spectacular show. From there they eventually were shipped by the Atlanta office to the malaria control areas.

"We had almost enough autos for our work throughout the war. I have always thought Mark Hollis earned his pay as a public servant on that one auto deal."

Dr. Louis L. Williams, Jr., took with him into the MCWA Mark D. Hollis, engineer, as his Executive Officer.

At first, Dr. Williams recalled, the MCWA had a policy fight which was resolved in a rather remarkable way. The problem was that the Public Health Service already had District offices, each of these offices dealing with several States, expected to do malaria control work.

"Six or seven District offices were involved with our Southeastern States," said Dr. Williams. "That seemed to me too much of a division of authority. I indicated to the Surgeon General that malaria should be one job and not half a dozen.

"New Orleans was the most important of these District offices. And it just so happened that my older brother, Dr. Charles L. Williams, was then in charge of the District office at New Orleans. We belong to a Public Health Service family, our father, Dr. Louis L. Williams, Sr., having been a Service officer. So we both understood the problems of the Service pretty well.

"I had Charles and his staff come over and talk with Mark and me. We came to no conclusion. The next week, Mark and I went to New Orleans and called on Charles. There came a point in our discussion when I said to him, 'Visualize your office running this colossal job.' He mulled that over—and at last answered:

"'You know, if we take over a job of this size, this office will be a little tail with a big malaria dog wagging it—and when this war is over all we do here will be forgotten and we will have to grow into an office again.'

"The District officers expected a fight when they soon met in Washington with Surgeon General Parran. Charles was called upon to open the discussion. He said to them just what he said to me. That ended the meeting."

In June 1943, Dr. Louis L. Williams, Jr., was assigned to the office of the Surgeon General of the Army to go overseas to Algeria as malariologist for the Mediterranean Area in preparation for the invasion of Italy. A heart attack prevented the completion of this work, but he helped in its planning from a sick bed.

Dr. Charles L. Williams agreed to take over the directorship of the



MCWA in addition to serving as Director of District Four. He served until January 1, 1944, when he was assigned to the Bureau of State Services in Washington, D.C. Mark D. Hollis then was put in charge of the MCWA, with the title of Sanitary Engineer Director.

The MCWA had started with the fifteen Southeastern States, Puerto Rico, and the Virgin Islands. There the big training camps were placed because the weather was warmer. And there the malaria mosquitoes bred. Soon its scope was extended westward to California and twenty-one jurisdictions were involved. Before the war was over, it was serving the whole country with training programs always in progress and a variety of educational programs extending into the States.

Director Mark D. Hollis, of MCWA, was quick to take advantage of dichlordiphenyltrichlormethylmethane (DDT) developed as a highly-effective insecticide of which a sufficient supply for use by MCWA was available in 1944.

As a matter of scientific record, DDT was first synthesized in 1874 by Othmar Ziedler, a German doctoral candidate, who failed to recognize its importance. It was rediscovered by Paul H. Muller, a Swiss chemist, and put into use in Switzerland in 1939. Three years later, the Bureau of Entomology of the Department of Agriculture at the request of the Army undertook to determine the most effective insecticide for disease control in the Armed Forces. DDT was announced as that insecticide in a preliminary report in February 1944. MCWA then started a study at the Carter Memorial Laboratory to develop a technique for applying DDT in practical field malaria control operations. DDT research was the chief work of that laboratory for two years. Large amounts of DDT were sent overseas to combat insect-borne disease among our troops.

The plan which finally solved the nurse shortage of World War II was that of Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense. By glamorizing nursing and paying for nurse education as a training for war service, he argued, enrollment of student nurses could be increased by 40,000 a year. He presented this plan first to the American Hospital Association in 1942. It was frostily, even angrily, received. But Dr. Baehr had succeeded in persuading hospital authorities to cut all frills from basic nurse training and shortening the course by the time Representative Frances Bolton introduced his plan in Congress as the United States Nurse Corps bill. The legislation was to be administered by the Public Health Service.

The bill passed both Houses without a dissenting vote. It was signed by President Franklin D. Roosevelt in June 1943.

A National survey of nurses made by the Public Health Service that year showed that the number of active registered nurses in this country was only 2,500 less than had been shown by the PHS survey of 1941—although 36,000 nurses already were in the armed services. The nurse

shortage thus had to be due to the rapidly increasing requirements for nursing service.

Senior Nurse Officer Lucile Petry was appointed director of the Division of Nurse Education to take charge of the U.S. Cadet Nurse Corps program. Never was a recruitment campaign more intelligently and successfully conducted. A snappy outdoor uniform—gray with touches of red with an artistic and splashy insignia—was designed. In addition to this distinctive uniform, the Corps offered prospective teenage students a free education, monthly stipends for a maximum of thirty months, indoor uniforms, and actual hospital duty in the senior year. Everybody knew about it. The National Advertising Council solicited free advertising space and free radio time. A publicity representative was employed by each of the teams of nurse consultants sent into six of the District offices of the Public Health Service. The recruitment drives used such slogans as “Join a Proud Profession.” The first year’s recruitment quota of 65,000 cadets was “over-subscribed” and so was the second year’s quota of 30,000 cadets.

The year 1944 was a triumphant turning point toward a far greater scope for Surgeon General Thomas Parran and the Public Health Service. Dr. Herman E. Hilleboe humorously told of the tactics which accomplished the change. He had been hard at work for two years in the Blaine Building organizing, with the help of the National Tuberculosis Association, a lobby for a law to set up a Tuberculosis Control unit in the Public Health Service.

“By 1944, we were ready to go,” he said. “About this time Surgeon General Parran was trying to re-codify the Public Health Service laws and was having difficulty getting passage of his omnibus bill. Then he hit upon the idea of combining the two bills. It was the steam behind the tuberculosis bill that put through the omnibus bill. The combined bills became Public Health Law 410. Did we celebrate that night!”

Surgeon General Parran had reason to rejoice. The Public Health Service Act of 1944 not only consolidated and revised existing health legislation, but also made possible the postwar program he was planning. Dr. Vane M. Hoge had been at work on its hospital aspects. Dr. Rolla Eugene Dyer, Director of the National Institute of Health, was concerned with its life-blood, research.

At the time the 1944 law was passed what was probably its most important provision went almost unnoticed. It empowered the Surgeon General to “make grants in aid to universities, hospitals, laboratories, and other public or private institutions and individuals.” Here was a broad legislative basis in the whole medical field for PHS research grants which had previously been limited to cancer.

To help win the war, the Office of Scientific Research and Development under Dr. Vannevar Bush, had a Committee on Medical Research which had been making grants in aid to universities. Dr. Dyer had become very enthusiastic over the possibilities in conducting such a system. Immedi-

ately on passage of the 1944 bill, the Public Health Service planned a general grants program. It was vetoed by the Budget Bureau until eventual victory became assured and the Office of Scientific Research and Development (OSRD) started making plans to close out. One of its problems was to secure the continuance of its forty-four important wartime medical research projects. In August 1944, Dr. Dyer wrote to Dr. A. N. Richards, Chairman of the OSRD Committee on Medical Research, proposing that these projects be turned over to the Public Health Service for operation under the 1944 law. This was done after the war was over.

Under the Public Health Service Act of 1944, Lucile Petry was made Chief Nurse Officer in the Office of the Surgeon General, with "general supervision over all nursing personnel of the Public Health Service, including personnel assigned for duty to other government agencies."

Dr. Herman E. Hilleboe was appointed to head the new Division of Tuberculosis Control created by the 1944 law. He had been promoted from a senior assistant surgeon, which carried the rank of Captain in the Army, to Medical Director, which carried the rank of Colonel.

The first official act of Dr. Hilleboe was to recruit Dr. Carroll E. Palmer, who had first won him to the Public Health Service, as head of the research unit in the Division of Tuberculosis Control. Dr. Palmer brought in Dr. Jacob Yerushalmy.

"The two made an excellent research team," said Dr. Hilleboe. "Another bit of good luck was to get Dr. Russell H. Morgan, a radiologist at the University of Chicago, to come in as head of the radiology section. He is now head of radiology at Johns Hopkins University and one of the top research men in the world in his field."

Dr. Morgan helped Dr. Hilleboe perfect the small film X-ray so that it could be made commercially. From 1944 to 1946, the Public Health Service with the continuing help of the National Tuberculosis Association, put the case-finding show on the road.

All over the United States in this spectacular exhibition of showmanship mass X-rays were taken in tuberculosis case-findings. Each X-ray device was taken from place to place by a little bus, through which people threaded to have their lungs X-rayed, and thus find out if they had the disease.

"The program caught fire because of the soundness of its epidemiological concepts which were the research results of Dr. Palmer's staff and the technical excellence of the equipment and methods produced by Dr. Morgan," said Dr. Hilleboe.

The campaign won Dr. Hilleboe another promotion. In June 1946, he was made an Assistant Surgeon General to help Surgeon General Parran in legislation. In July of the next year he was given a leave of absence to become New York State Commissioner of Health.

Dr. Palmer, who for seven years had been studying the question of what diseases other than tuberculosis could cause calcification of the lungs,



announced his finding of histoplasmosis, a fungus disease, in May 1945, the last year of World War II. He had found the answer through a Nationwide project of skin testing of student nurses. Dr. Leslie L. Lumsden died in New Orleans, Louisiana, November 8, 1946, and so may possibly have known the solution of the problem he had raised.

Dr. Palmer began with that problem presented to the conference on tuberculin at Hagerstown, Maryland. He wanted a group of people from different parts of the country who could be skin tested and X-rayed frequently. But, how to find such a group, and who could they be? In the early 1940's tuberculosis was quite prevalent among nurses, and authorities were concerned about the health of student nurses.

"So," said Dr. Palmer, "we started a continuing study of nurses.

"The study population included, practically speaking, all student nurses in Baltimore, Philadelphia, Detroit, Minneapolis, Kansas City, Denver, San Francisco, Los Angeles, New Orleans, and Columbus, Ohio.

"We set up our own teams to do the skin tests, and were allowed a good deal of freedom to try out different materials in ways we thought would most likely provide the leads we were seeking. Very early we began to suspect that a fungus might be the cause of the calcium found in negative tuberculin reactors. One of the tests we used was for coccidioidomycosis, a fungus lung disease; it didn't work. We talked with others about skin tests for other fungus diseases."

Eventually histoplasmin was used in tests of the nurses—the first time in Detroit, where the incidence of calcium in negative reactors was neither particularly high nor low. "Testing was done with both tuberculin and histoplasmin," continued Dr. Palmer. "On the train back to Washington, D.C., from Detroit, I studied the cards showing the results. And there was the answer—among the negative tuberculin reactors, the girls who had calcium invariably reacted to histoplasmin! The following week the team went to Minneapolis, where there were very few negative tuberculin reactors with calcium, and found few histoplasmin reactors. The next stop was Kansas City, a hot bed of calcium in negative reactors. Here many of the students reacted to histoplasmin and those with calcium in the lungs practically all reacted! This was the breakthrough we had started the nurses' study to find. It had taken more than seven years to show that the cause of the calcification in negative tuberculin reactors was histoplasmosis, a fungus disease until then considered rare and usually fatal."

Simultaneously, Dr. Amos Christie, of Vanderbilt University, was working on the same problem and a mild controversy arose as to whether he or Dr. Palmer was the real discoverer of the fact that calcification of the lungs attributed to tuberculosis was caused by histoplasmosis. Soon after Dr. Christie became professor of pediatrics at Vanderbilt in 1943, he was puzzled by the presence of pulmonary calcification in the absence of positive tuberculin tests. Dr. Christie was told by a friend, Dr. Charles C. Smith, that these calcifications might be caused by histoplasmosis which

already had been termed more prevalent and milder than generally supposed by an earlier Vanderbilt professor, Dr. William A. DeMonbreun. During 1944, Dr. Christie tested the skin sensitivity of 180 children and found that many of them reacted positively to histoplasmin.

In an article, "The History of Histoplasmosis" by two physicians, Jan Schwarz and Gerald L. Baum, published in the *New England Journal of Medicine*, January 3, 1957, the authors said that Dr. Palmer and Dr. Michael L. Furcolow, also of the Public Health Service, visited Dr. Christie in March 1945.

Dr. Palmer set up, after that war, a histoplasmosis laboratory in Kansas City with Dr. Michael L. Furcolow in charge.

Studies of emotional disturbances induced by combat which were made by psychiatrists in World War II completely changed this country's attitude as to how to treat mental illness. In World War I combat fatigue victims were sent to mental wards in the United States, most of them to gravitate into the hopeless state of permanent patients. In World War II the aim became to return them to battle.

This was true also for the Navy, the Coast Guard, and even merchant seamen through a joint program of the Public Health Service and the War Shipping Administration.

One of the psychiatrists who studied combat fatigue in the Navy was Dr. Robert A. Cohen, then a Lieutenant Commander in a Navy Hospital, and later for many years Director of Clinical Investigations, Intramural Research, National Institute of Mental Health. Dr. Cohen, with Lieutenant J. G. Delano, who was later on the staff of the Mayo Clinic, as co-author, analyzed the combat fatigue syndrome in 1945.

"There was a notable change in the attitude toward psychiatry as a result of war-time experiences. Previously it had been mainly a hospital-based specialty. But as a result of its demonstrated usefulness in many situations of stress, even those who had been skeptics developed a measure of interest in, and respect for it.

"As recently as 1935 my class at the University of Chicago did not have a single lecture in psychiatry. Only a few medical schools had strong independent departments. But after the war there developed a wide-spread interest in psychiatric training, and it soon became a standard part of every good medical curriculum."

Plastic surgery, occupational therapy, and prosthetics also were fields opened by World War II to vast advances.

In a speech titled "Return to Life" given in New York City late in the war, Surgeon General Parran particularly praised Mrs. Charles W. Spencer, of Phoenixville, Pennsylvania, in these words:

"Her husband, a lieutenant in the Air Force, lost his ears, his nose and one eye when his plane was hit while flying over Germany. He worried about her concern over his appearance. But he need not have. Mrs. Spencer, with a courage and spirit which I can recom-

ment to every woman in the United States for emulation, said proudly and smilingly, 'I married a man, not a face.'

"I am happy to add that, thanks to the skilled fingers of Colonel Brown, she is destined to have both the face she knew and the man she loves."

Nowhere did the news of the facial miracles made possible by the new art of plastic surgery fall on more fruitful ground than at the Public Health Service hospital for the victims of Hansen's disease at Carville, Louisiana. Many of these patients had lost eyebrows and parts of noses from the ravages of leprosy. They began to find out what a plastic surgeon might do to restore facial structure and appearance.

No part of the country was too remote for important public health work for war. At the Rocky Mountain Laboratory at Hamilton, Montana, Dr. Harold R. Cox developed a vaccine for the prevention of typhus fever, ever a dread wartime disease. It was grown in the yolk-sacs of embryonated eggs.

At the National Institute of Health, Using Cox vaccine as a basis, Dr. Norman H. Topping and Ida A. Bengtson modified the technique and developed a more effective vaccine which, with the use of a booster every six months, protected from any typhus epidemic all the servicemen and women of World War II. Much of the vaccine was produced at the Rocky Mountain Laboratory.

All the yellow fever vaccine used to immunize United States troops in World War II was made at the Rocky Mountain Laboratory, making it possible for Dr. Mason V. Hargett to perform there a modern medical miracle. In the late 1930's Dr. Fred L. Soper, working in South America under the Rockefeller Foundation, had demonstrated the existence of reservoirs of yellow fever among the monkeys of the jungles. This disease was transmissible to man. To guard against jungle yellow fever, Dr. Hargett was assigned by the Public Health Service to set up a stiff program of yellow fever vaccinations and killing off of mosquitoes by insecticides and gas fumigation at the Miami, Florida, airport. Surgeon General Par-ran then sent Dr. Hargett to Brazil to study yellow fever with the Rockefeller Foundation. He returned in 1939 and was sent to Hamilton, Montana, in October 1940 to prepare yellow fever vaccine for the troops. He produced large quantities of vaccine routinely made with human serum and developed a non-serum vaccine.

During the late winter of 1941 and spring of 1942, 28,000 servicemen who had been injected with yellow fever vaccine made with human serum came down with jaundice. One hundred of them died. It was later proven that the human serum had caused the jaundice. Dr. Hargett was able to speed up the production of the non-serum vaccine to the point where all the servicemen of World War II were supplied, thus saving hundreds of lives.



Surgeon General Parran was ready to announce his postwar aims in his *Annual Report* of November 1944.

"The people increasingly recognize that health is a paramount public concern," he said. "Plans are being shaped for international collaboration in peace after victory. World health will undoubtedly be a major field in the permanent organization of nations. It would seem that the United States should now consider the means by which its health resources may be reorganized and developed so as to implement ultimately a comprehensive project for the national health."

He reviewed the 1932 findings of the Committee on the Costs of Medical Care which had advocated group payments of such costs through insurance, taxation, or both. He pointed out that the 1944 law had given the National Institute of Health authority to make Federal grants-in-aid to medical research institutions; and had also made possible a Nationwide attack on tuberculosis. He announced the six-point postwar program of the Public Health Service:

- (1) a sanitary environment for everyone;
- (2) a hospital system adequate for the provision of complete medical services for all;
- (3) expanded public health services in every part of the country;
- (4) augmented research in health and medical sciences;
- (5) training of health and medical personnel in adequate numbers;
- (6) a national medical care program.

He then spelled out what he encompassed in those six understatements—5,000 new water systems and improvement of 6,500 others; 166,000 new beds in general hospitals, 191,000 in mental hospitals, and 44,000 in tuberculosis hospitals, with small rural hospitals turning for help to big base hospitals at medical centers; fulltime county health service for the 40 percent of the population not so served; enough research to reduce the enormous toll of mental disease, cancer, heart disease, and arthritis, to suppress plague and typhus and tropical diseases, and to conquer dental caries; training of nurses, technicians, and sanitarians as well as physicians, dentists, and public health engineers.

As to the National medical care program, he suggested Federal grants to States wishing to expand public medical services and also social insurance, adding: "The United States possesses the potential resources with which to insure to every citizen the maximum benefit from all that the life-saving sciences have to offer. Public Health means the sum total of individual health. Only by considering the needs of the individual, the local community, and the State can we arrive at a program adequate in scope and extent for the Nation as a whole. A National Health Program such as is envisaged here contemplates the full utilization of all resources—the participation of private institutions, local, State, and Federal governments—in a cooperative enterprise for the national welfare."

In that month of November 1944, Surgeon General Parran put Dr. Louis L. Williams, Jr., back at work after his heart attack, in charge of an office set up in Washington, D.C., to control tropical diseases which were expected to be imported by returning troops. The Surgeon General was preparing for the international public health work he expected to launch with the World Health Organization.

Victory in Europe came with the unconditional surrender of Germany on May 7, 1945. The conquest of Japan was certain. A date was set for the conference in San Francisco to formulate the United Nations. On April 12, 1945, President Franklin D. Roosevelt suddenly died at Warm Springs, Georgia. His successor, President Harry S. Truman, had to make the decision to shorten the war by dropping on two Japanese cities, Hiroshima and Nagasaki, that awful new weapon, the atomic bomb, developed in secret under Roosevelt. Victory over Japan Day was proclaimed on September 2, 1945.

The surrender of Japan suddenly put an end to the third-year appeal for Nurse Corps Cadets. Between July 1945 and October 15, 1945, the final date for admission to the Corps, about 175,000 Cadets had entered 1,125 of the Nation's 1,300 schools of nursing. The Office of War Information rated the Cadet Nurse Corps program the most successful of all the wartime recruitment programs. Of all students entering schools approved by State boards of nurse examiners, 70 percent in 1943, 88.5 percent in 1944, and 70 percent in 1945 were members of the U.S. Cadet Nurse Corps.

At the height of the program, Senior Cadets supplied 80 percent of the nursing service in the institutions which operated the nursing schools participating in the program. About half of the 35,000 Senior Cadets who applied for Federal service in the last year of the war were assigned to the Veterans Administration, the rest going into Army, Indian Service, and Public Health Service hospitals.

Total cost to the Government of the five-year U.S. Cadet Nurse Corps program, administration, uniforms, maintenance, tuition fees, and stipends, was \$160,326,237. In addition, the Public Health Service channeled Lanham Act funds into construction of living quarters, classrooms, libraries, and 239 hospitals conducting nursing schools in all but nine of the States.

In February 1945, Dr. Louis L. Williams, Jr., was assigned to draft a joint statement of policy by the United States Army and the United States Public Health Service on the Extended Malaria Control Program. That statement, published on April 27, had an entire section on the use of DDT.

Engineer Director Mark D. Hollis, of the MCWA, had proven that by spraying houses with DDT, malaria could be cleared from areas which could not afford the big machinery for larviciding operations. That spring

a cooperative house-spraying program was organized with the health departments of thirteen States.

In 1945, responsibility for typhus control was transferred to the MCWA in Atlanta, Georgia. Research on diseases borne by flies, fleas, and tropical parasites also was transferred there.

At the end of fiscal year 1945, MCWA ended, but all of its research, inspection, control, and public information activities emerged as the Communicable Disease Center of the Public Health Service with Mark D. Hollis still its Director.

In the last fiscal year of MCWA operations, 1,063,000 rural houses were given residual sprayings. DDT was also sprayed by airplanes over breeding areas. Its use as an insecticide was spread to farmers all over the world. As this book was being written Dr. Louis L. Williams, Jr., could honestly say his hope for the eradication of malaria in this country had been realized. Only an occasional imported case comes to public attention.

All through the war, Dr. Vane M. Hoge concentrated on long-range hospital planning for this country while he was directing the construction of the emergency hospitals in war-swollen communities. In 1944, the American Hospital Association set up a "Commission on Hospital Care" for postwar hospital planning with which Surgeon General Thomas Parran and Dr. Hoge worked closely. It was financed by several foundations, including Ford, the National Foundation for Infantile Paralysis, Kellogg, and the Commonwealth Fund. The Public Health Service also contributed money and personnel.

Dr. Vane M. Hoge wrote a paper on the findings of this Committee which he read before the Pennsylvania Hospital Association. It was considered so excellent that he was awarded a Master's Degree on that one short paper. It became, in addition, a forecast of the Hill-Burton Hospital Construction Act which Dr. Hoge helped to draft. In January 1945, this bill was introduced in the Senate by Senator Lister Hill, Democrat, of Alabama; jointly with Senator Harold Hitz Burton, Republican, of Ohio.

Thus the hospital construction bill was pending when the war ended. So were two other bills important in the health field. The most controversial bill was the sweeping Wagner-Murray-Dingell Bill for compulsory health insurance which would provide medical care for all through a payroll deduction plan under the Social Security system. This bill had developed from Senator Robert F. Wagner's earlier bill prompted by the health conference held by Josephine Roche. Senator Wagner then had called for payment for individual medical care through grants-in-aid to the States which would make their own rules. Senator Wagner, Democrat, of New York, had been joined in the Senate by Senator James Edward Murray, Democrat, of Montana, and in the House by Representative John David Dingell, Democrat, of Michigan. The other important pending bill was for a National attack against mental illness, formulated as the result of the zeal of a young psychiatrist, Dr. Robert H. Felix.





## Chapter 18:

### ALL-OUT ACTION FOR PUBLIC HEALTH

Surgeon General Thomas Parran  
1936–1948

#### (Part Three)

As World War II ended, Surgeon General Thomas Parran set in motion a prodigious public health concept.

He was chiefly concerned with formulating a well-financed World Health Organization to function under the United Nations. He had as helper Dr. Louis L. Williams, Jr., expert on tropical communicable diseases.

With Dr. Rolla Eugene Dyer, Director of the National Institute of Health, as his chief organizer, Surgeon General Parran concentrated on enlarging that suburban research campus for the so-called “bench work” on major chronic diseases. The National Institute of Health at Bethesda, Maryland, was to become the focal point of fundamental medical research in the United States.

Dr. Parran visualized the Communicable Disease Center at Atlanta, Georgia, as the place for practical research and demonstrations on the curbing of contagious diseases. Dr. Joseph W. Mountin was the genius in this field. Dr. Parran was promoting two other Mountin ideas: a National center to combat water and air pollution at Cincinnati, Ohio, and an Arctic Research Center in Alaska.

Dr. Parran foresaw a system of great university hospital centers feeding knowledge on patient care to rural and urban hospitals in their areas—and these rural and urban hospitals turning to the university centers on difficult cases. He always spoke of this hospital system as “a two-way street.” Dr. Vane Hoge was the expert on hospitals.

Surgeon General Parran advocated that this comprehensive plan for health advancement be made financially possible not only through grants-in-aid to the States, which he had helped to promote under the Social Security Act, but also through compulsory health insurance.

Only eleven days after V-J Day, Dr. Parran went to Atlanta, Georgia, where the Malaria Control in War Areas program had been directed, followed by its extended program for dusting houses in rural areas with DDT. There he gave an address before the Georgia Conference on Social Welfare titled: “Rural Health—Today and Tomorrow.”

“Now that total victory is here, we must work toward the permanent and broad objectives of equal opportunity for all the people to obtain complete health and medical service,” he said.

On a long-range basis he recommended the Wagner-Murray-Dingell Bill for compulsory prepaid health insurance, together with hospital construction, medical research, and extension of social security to agricultural and domestic workers. He reminded his hearers that many hundreds of doctors in Georgia had participated in the prepayment plan of the Farm Security Administration which had been worked out and administered by Dr. Ralph C. Williams of the Public Health Service. Dr. Williams had by then become the Assistant Surgeon General in charge of the Bureau of Medical Services of the Public Health Service.

Dr. Parran told the Georgians that the very comprehensiveness of the Wagner-Murray-Dingell Bill would attract criticism and that it would be a long time getting through Congress. He therefore recommended the speedy passage of the Hill-Burton Hospital Construction Bill then pending in the Senate. Dr. Parran saw this bill as making possible the combination, in a great service system, of complex central university hospitals with the smaller hospitals in their radius. He named the Emory University Hospital in Atlanta as having been recommended "as the focal point for a hospital development program."

In Atlanta, too, he painted a rosy picture of the Public Health Service institution which he hoped to see rise there, the Communicable Disease Center. Dr. Parran said that it would be a scientific headquarters, for this and other countries, in programs for the control of malaria, typhus fever, and other diseases of tropical origin.

"The institution I have in mind would carry on the training of technical and health education personnel in this particular field," he said. "It would serve the States through specialized epidemiological service and laboratory and field studies on communicable disease problems and control. With State health departments, it would conduct demonstrations in the control of communicable diseases—particularly those of tropical origin. However, the first responsibility of such an institution would be to conduct basic research into all the tropical and other diseases which are spread by insects and other intermediate hosts, and which can be checked or eliminated through proper environmental controls."

That was precisely how CDC was organized. Dr. Parran later said that Mark D. Hollis, trained as a sanitary engineer, "deserves all the credit" for the successful landing of CDC.

However, Hollis, when dictating his own historic notes, said: "The man behind the success of MCWA and the conversion to CDC was Dr. Joseph W. Mountin." He said Mountin had proposed that the PHS should not scuttle the machine it had built at Atlanta.

"Joe Mountin had the ability of pushing other people and he cared not the least what was thought of him," Hollis continued.

He cited as example the day he and Dr. Mountin were called upon by Surgeon General Parran to present at a meeting in Washington, D.C., why they thought an institution against communicable diseases was needed.



Dr. Mountin and Dr. Hollis thought that Dr. Rolla Eugene Dyer, as spokesman for the National Institute of Health, would oppose their plan to the bitter end.

"So we developed a strategy," said Hollis. "Mountin's strategy was that we would let Dyer speak first, let him set up all the 'straw men' and then we'd knock them down."

The "straw men" visualized by Dr. Mountin were: "That CDC would develop competition. That we would thin out our scientists. That there would be either conscious overlapping or unconscious overlapping and duplication. That unquestionably it would cause a political problem because Congress could never understand why, if we needed such a field station, it should not be a field station of NIH."

"We have got to argue that NIH is essentially basic research and works in the field only to support the bench," said Dr. Mountin. "If it is a basic research problem, it belongs to NIH. If it is a field problem in communicable disease problems, it belongs to the institute being formed in Atlanta."

"We went into the meeting geared to fight," said Hollis. "Dr. Parran opened the meeting with, 'Joe, do you want to present the points?'"

"Joe Mountin had a habit of taking a pencil and rubbing it in his hair. As he rubbed he said, in essence, the way only Mountin could say things, 'We all admire and deeply respect Dr. Dyer. We look to him as the guiding adviser in research. His competence and capacity is such that we think he ought to comment first and let us learn by listening.'

"This was by way of getting Dyer to speak first. What Dyer said, to our amazement was, 'I've gone over the proposal carefully, Dr. Parran. I don't see anything wrong with it. It's a good idea.'

"Dr. Dyer said he disagreed with the name—it should be called a 'Center' instead of an 'Institute.' And he added, 'I particularly like the idea that emphasis will be on control problems. They'll have 'a bench,' a research environment that will be used only to support the field controls. I still think that NIH should retain its principle as being concerned with scientific research on basic principles and use the field only to back it up. I like the way they have expressed coordination, and I see no problems.'"

Hollis said that Joe Mountin wasn't going to take success that easily. "I was just dumbfounded to hear Mountin say, 'Well, now, wait a minute,'" said Hollis.

"He recounted all those 'straw men' that he felt Dr. Dyer was going to raise, and we wound up with Dr. Mountin bringing them up and Dr. Dyer knocking them down! It was amazing! There was Mountin making not the slightest explanation, such as 'I did this to get it all out on the table.' I thought it illustrated completely that Dr. Mountin's whole energy and heart was in the work of getting it done, and he didn't care where he stood in people's minds at all."

In his earlier emphasis on venereal disease, Dr. Parran had hit upon

the categorical approach to disease research and treatment that was to bring success for decades. He had first hit hard at one deadly disease, syphilis.

Now that the War was over, Surgeon General Parran could point out that expenditures of Federal funds for seven years for venereal disease control had paid large dividends to the Nation.

"Venereal diseases have caused less loss of time from active duty by the armed services of the United States during this war than the losses experienced by this or any other country in any prior war," he said. "Men in the services will go back to their homes free of infectious venereal diseases.

"The Congress had been generous in making this result possible; yet the cost has been small. During the fiscal year 1945, the amount appropriated for venereal disease control amounted to 10 cents per capita."

Dr. Parran called the National Conference on Postwar Venereal Disease Control in St. Louis, Missouri, November 9 to 11, 1945. More than seven hundred people attended, including public health officials of every State, experts of this and other countries, and representatives of the Armed Forces. The new penicillin rapid treatment centers were dramatically described, and radio transcriptions on them were made available to health departments.

Dr. Parran termed the estimated annual incidence of 200,000 cases of syphilis "a manageable problem particularly if the new methods of penicillin therapy in rapid treatment centers are widely applied."

Tuberculosis was the second disease category on which Dr. Parran had made a massive attack during the War. His *1945 Annual Report* on tuberculosis stated: "Expansion of the X-ray case-finding in the health agencies, the military services, and industry has revealed nearly 200,000 cases during the period 1941-1944. About two-thirds of these were discovered in the early stages of the disease, a fact which had undoubtedly contributed in holding tuberculosis mortality in check."

His report on malaria, the third disease to be target of a major Parran campaign, was even more hopeful. "Efforts have been successful up to now in prevention of malaria epidemics which might have been caused by infected troops returning from overseas. As a result of our control measures this disease continues to decline. It can be eradicated if we are enabled to extend our current work into all malarious areas. The cost will not be great."

Before the year 1945 was over, Surgeon General Parran was able to boast:

"Health is a national concern. On November 19 for the first time a President of the United States expressed that concern in a Health Message to Congress."

President Harry S. Truman had indeed made improved health for the Nation a major objective. His eleven-page health message was labeled

"Request for Legislation for Adoption of a National Health Program." He said the economic bill of rights for the American people should include "the right to adequate medical care and the opportunity to achieve and enjoy good health." He quoted the Selective Service System figures that about 30 percent of all men between the ages of 18 and 37 who had been medically examined were rejected as physically or mentally unfit for service; and that over one-third of the women who had applied for admission to the Women's Army Corps had been similarly rejected.

The President listed five main problems:

The poor distribution of physicians—more than 30 counties each with more than 1000 inhabitants had none.

The need for development of public health services and maternal and child care—forty million citizens lived in communities lacking full-time local public health service.

The need for medical research and professional education to reduce the diseases of body and mind which caused most sickness, disability, and premature deaths. President Truman had a long and detailed list which included special paragraphs on the cancer toll and the fact that "mental cases occupy more than one-half of the hospital beds."

The high cost of individual medical care—"Individual families pay their individual costs and not average costs."

The loss of earnings when sickness strikes—"Sickness not only brings doctor's bills, but cuts off income."

"To meet these problems," said President Truman, "I recommend that the Congress adopt a comprehensive and modern health program for the nation to consist of five major parts, each of which contributes to all the others."

Trimmed down to its titles, this program was:

"First, Construction of Hospitals and Related Facilities.

"Second, Expansion of Public Health, Maternal and Child Health Services.

"Third, Medical Education and Research.

"Fourth, Prepayment of Medical Care.

"Fifth, Protection Against Loss of Wages from Sickness and Disability."

On the fourth point, which proved to be one of the most controversial issues ever plunged into American politics, President Truman said: "I recommend solving the basic problem by distributing the costs through expansion of our existing compulsory social insurance system. This is not socialized medicine."

All Americans knew the value of the insurance system, he said. Voluntary hospital insurance had shown its value in illness, yet "only about 3 or 4 percent of our people now have insurance providing comprehensive medical care." A system of required prepayment would spread the cost of medical care and also prevent much serious disease. People should remain



free to choose their own physician and physicians should remain free to accept or reject patients.

"I repeat—what I am recommending is not socialized medicine," said the President. "Socialized medicine means that all doctors work as employees of government. The American people want no such system. No such system is here proposed."

This message, regarded as an endorsement of the Wagner-Murray-Dingell Bill, apparently made a definite impression on the American people. On March 29, 1946, the Bureau of the Budget issued a 30-page mimeographed pamphlet titled: "National Medical Care, An Opinion Study" intended only for the experts and marked "Restricted." To 175 persons in 123 localities in 40 States and Alaska, five questions had been posed by the Budget Bureau.

They were: 1. Are people interested? 2. Is present medical care considered adequate; reasons for inadequacy. 3. Do people think something should be done? Who should do it? 4. Does feeling run for or against a national health plan? Reasons for approval or opposition. 5. Who should be covered by a national health plan?

The persons to whom these questions were put were limited to five occupations—small businessmen, editors, labor leaders, social workers, and housewives.

The inquiry revealed a strong belief that most people do not get enough medical care and that something should be done about it. It also showed that the balance of opinion tilted toward approval of a national health plan to provide medical services, with employees, employers and Government sharing the expense. All the then-current public opinion polls, most of them posed with questions on the "Truman plan" were analyzed as part of the process of arriving at these two conclusions.

In the light of the Truman health message and the subsequent opinion poll, it is not surprising that twenty years later, President Lyndon B. Johnson took the law which finally evolved from Point Four—the Medicare Bill providing prepaid benefits to all over age sixty-five—out to the Truman Library in Independence, Missouri, to be signed in the presence of former President Harry S. Truman.

The momentous year of 1946 in Public Health Service history opened auspiciously. On January 1, the Research Grants Office was established by the Surgeon General in the National Institute of Health, in accordance with the grants program authorized two years before but not then implemented because of the War. The Office of Scientific Research and Development, going out of existence, turned over about \$800,000 as grants to finance some two hundred and fifty uncompleted medical research projects in universities, and pharmaceutical laboratories, to the Public Health Service to be administered under the 1944 law, Public Law 410. Dr. Cassius J. Van Slyke was brought from the Staten Island hospital where he had been researching on venereal disease to head the program.

The National Advisory Health Council at first reviewed the grants. Study sections of experts in the various fields of research were then set up, and on the basis of their findings, the Council recommended the grants to be awarded by the Surgeon General. In the first six months of its work, 67 grants totalling \$1,027,450, were made for the 1946 fiscal year; and 129 more grants totalling \$2,079,695 were recommended for the 1947 fiscal year to go into 71 universities, laboratories, and other research institutions in 26 States.

This was the broadening beyond cancer of the Federally-subsidized medical research system which in less than two decades would cause the expenditure of more than a billion Federal dollars annually in all the States of this country, and in many other countries throughout the world.

That January, Surgeon General Parran and part of his staff moved from the temporary Public Health Service headquarters on the NIH grounds back into the handsome Federal building constructed for the Public Health Service at Nineteenth Street and Constitution Avenue, N.W. There Dr. Parran could be in closer touch with the communicable disease and the sanitary engineering activities Dr. Mountin was conducting in the Blane Building at 2000 Massachusetts Avenue, N.W. They had by now assembled in Washington a brilliant group of scientists, most of them young, whom Dr. Parran set to work to formulate proposals for the planning and coordination of the important research program into which the Public Health Service had been plunged at the end of the War. They met at night to discuss and vote on these proposals.

A five-page memorandum dated January 3, 1946, portrays this democratic approach to a scientific problem. Doctors Norman B. Topping, Leonard A. Scheele, and Cassius J. Van Slyke were the three-man committee reporting the recommendations of fourteen conferees to Dr. Rolla Eugene Dyer, Director of the National Institute of Health, for his presentation to Surgeon General Parran "before his departure next week." Dr. Parran was going to London to prepare for formulating the World Health Organization.

The memorandum stated that Doctors Herman E. Hilleboe and John Rodney Heller, Jr., had been "absent from the final meeting on account of illness." It added, "They have today also concurred in the statement." In addition to the five physicians already mentioned, those who "thoroughly discussed and unanimously approved the statement" were Doctors Otis L. Anderson, Antonio Ciocco, W. Palmer Dearing, Robert H. Felix, John W. Knutson, Joseph W. Mountin, Carroll E. Palmer, David E. Price, and statistician George St. John Perrott.

These men recommended that the Surgeon General designate the Director of the National Institute of Health as his "chief of staff" for research planning purposes. But they specified that he "would exercise no authority of his own" other than on "the constituent institutes, divisions, and laboratories of the National Institute of Health."

"Rather, it would be his function to develop and recommend policies, programs and arrangements for the consideration and approval of the Surgeon General," said this memorandum.

Seven recommendations for planning the research of the Public Health Service were made by these fourteen men and sent along to the Surgeon General by the route that they were recommending for all future medical research plans. The Surgeon General accepted the recommendations.

That same year of 1946, Congress passed two tremendous health measures, the Hospital Survey and Construction Act and the National Mental Health Act. And Surgeon General Parran presided over the International Health Conference, held in New York June 19 to July 22, in which the Constitution of the World Health Organization was drafted.

The Surgeon General listed in his Annual Report these "three milestones" in that order, and said of them: "Each of these marks a step forward in the concept of public health functions. Each holds a great promise for future accomplishments."

The Hospital Survey and Construction Act of August 13, 1946, authorized \$3,000,000 for Federal administration and for grants to the States to conduct State-wide hospital surveys and to draw up a comprehensive plan for hospital construction in that State. Not until the State plan was approved would any hospital construction funds be granted. A total of \$375,000,000 was authorized for hospital construction in the first five years. Federal funds could go to voluntary nonprofit hospitals as well as public hospitals. In each case, two-thirds of the cost had to be met by non-Federal funds. The Federal hospital construction funds were to be allocated on the basis of population and per capita income, the States with the lower income receiving more per capita than the wealthier States.

"For the first time" said Surgeon General Parran, "a national policy is established whereby hospitals and health centers are planned, located, and operated in relation to the overall health needs of the people. This policy has been evolved by hospital leaders who recognize their responsibility to help bring essential health services to the maximum number of people with maximum efficiency."

Working closely with Surgeon General Parran at this time was the American Hospital Association. Dr. Parran appointed Dr. Vane M. Hoge, who had drafted the Hospital Survey and Construction bill, Medical Director in charge of the Hospital Facilities Division responsible for the administration of the Hospital Construction Act. Dr. Hoge had learned how to conduct a successful national program of building hospitals by having charge of the temporary wartime building of hospitals in crowded communities using Lanham Act funds.

Dr. Parran presented in many places his views on the new National policy in hospital building. He later said he did not originate this plan of great university hospital centers radiating out to smaller hospitals—



but got it from fellow officers of the Public Health Service.

"I am not very good in creating new ideas," he explained. "In general I promote the good ideas of others."

In speeches and magazine articles of the postwar years, Dr. Parran credited Doctors William J. and Charles H. Mayo, of Rochester, Minnesota, with blazing new trails in medical organization, notably "group practice" which Dr. Parran called "the only antidote to 'competitive practice' and inferior service."

"Our great university hospitals and many private centers were cut to that design," he said. "They represent group practice of the highest standard. What is needed today is the application of this principle of 'group medicine' on a much wider scale so that its benefits—and therefore the benefits of modern medicine—may reach down into the smallest community, even into the lonely farm house.

"Hospitals of the future should form the nucleus around which integrated services are developed. The largest centers should be associated with schools of medicine and would carry on extensive research programs. Patients requiring more complicated services than are available in their communities would have access to the center—or perhaps to a district hospital serving a number of communities. In small towns there would be smaller rural hospitals or health centers—linked administratively with the district hospital and the large medical center.

"An integrated program such as I have in mind would be a two-way street: that is, patients would be sent to the larger institutions for diagnosis and treatment when needed, and returned to their homes for follow-up; local physicians would have access to the consultative, laboratory, and educational facilities of the center; the center would send teams to the smaller groups to conduct refresher courses and teaching clinics."

Dr. Parran recalled that infectious diseases had been to a large degree conquered through the successful effort of organized medicine to expand governmental health services. He reminded that State and local health agencies had added many services to private physicians, such as free biologic products, free drugs for treatment of syphilis and gonorrhea, and consultant services in venereal diseases, tuberculosis, industrial medicine, obstetrics, and pediatrics.

"There will be new opportunities for the profession to combine public health practice and private practice," he said. "Modern facilities for the diagnosis and treatment of cancer cases; a community mental health service; diagnosis of nutritional deficiencies; bedside nursing care as a visiting service—these are a few of the new programs which every modern health department must consider."

Senator Lister Hill, Democrat, of Alabama, was the principal protagonist of the Hill-Burton Hospital Construction and Survey Act. For two decades under his tutelage it has prospered by added appropriations and has been enlarged by amendments.

The personality behind the creation of the National Institute of Mental Health was that remarkable young crusader, Dr. Robert H. Felix, a fifth-generation physician, born in Downs, Kansas. His father, Dr. T. Ovid Felix, took his small son with him on calls all over Osborne County. His mother was a doctor's daughter. Robert Felix drove a hospital ambulance at night to earn his way through the University of Colorado Medical School, and was graduated with honors in 1930. A Commonwealth Fund residency in psychiatry followed, a course he completed in 1933.

He then was commissioned as a medical officer in the Public Health Service. His first tour of duty was at the Department of Justice Medical Center in Springfield, Missouri, under Dr. Lawrence Kolb. Next he went to the Narcotic Hospital in Lexington, Kentucky, where he worked in succession under Dr. Kolb, and Dr. Walter L. Treadway. Both of these seasoned Public Health Service medical officers helped train Dr. Felix to become the third chief of the Mental Hygiene Division, of which Dr. Treadway had been the first chief and Dr. Kolb the second.

To Dr. Kolb, particularly, Dr. Felix later paid tribute for making a special place in public health for him. Dr. Kolb had tried to launch a national neuropsychiatric research center in 1938, but had failed. In 1941, on the recommendation of Dr. Kolb, Dr. Felix had been sent for advanced public health training to Johns Hopkins University from which he received a Master's Degree just as this country entered World War II.

As war duty, Dr. Felix was ordered to the Coast Guard Academy at New London, Connecticut, as Chief Medical Officer, to inaugurate a complete program for the selecting, counselling, and therapy of cadets. There he made a brilliant record. When Dr. Kolb was preparing to retire for age, Dr. Felix was brought to Washington, on July 1, 1944, to be observed as a possible successor. Just before Dr. Kolb was retired on November 1, 1944, Dr. Felix was told that he had been made the chief of the Mental Hygiene Division.

"Dr. Parran called me in and asked me what I proposed to do now that I was in charge of mental hygiene," said Dr. Felix. "I told him I proposed to set up a national community-based program, founded on research; and to train many more people who could work effectively with the States.

"Dr. Parran began to smile. He didn't answer me, but those piercing eyes of his popped.

"'Bob, you write it down, just as you told it to me, and you give it to me,' he said.

"For two days and nights I wrote, struggling to put into words my idea of a mental health program, and knowing that I would take it downtown and find a kindred spirit in Dr. Parran.

"After I had shown it to Dr. Parran, I found myself taking it to Social Security Administrator Watson B. Miller who told me to see his Assistant, Miss Mary E. Switzer. Mary read it and got excited. She called in Miss



Courtesy Public Health World, PHS

Dr. Lawrence Kolb, narcotics expert of the Public Health Service, who conducted the construction of the hospital for narcotic drug addicts at Lexington, Kentucky. He procured the first lumber for its Woodcrafts Industry and lived to see many ultramodern Federal suites outfitted with Lexington furniture.

Gladys Harrison, of the General Counsel's office. Miss Harrison was interested. Legislative draftsmen were called in, and we sat down and drafted a National Neuropsychiatric Institute Act. We decided that the title should bear a closer resemblance to diseases named more simply, such as Cancer, or Heart Disease. And since Mental Illness doesn't come easily to the tongue, we took a more positive approach and called it Mental Health."

The National Mental Health Act had bipartisan sponsorship in Congress. Dr. Felix had first secured Representative J. Percy Priest, Democrat, of Tennessee, a recognized legislative leader in the public health field, as sponsor. He was joined by Representative Clarence C. Brown, Republican,



of Ohio. The chief sponsor in the Senate was Senator Claude Pepper, Democrat, of Florida, who was joined by Senator Lister Hill, Democrat, of Alabama, and four other sponsors. Included were two of the Republican health leaders, Senator Robert A. Taft, of Ohio, and Senator George Aiken, of Vermont. As chairman of a Senate subcommittee, Senator Pepper had conducted hearings on draft rejectees and had been shocked by testimony that Selective Service had to reject about 900,000 men between the ages of 16 and 37 for neuropsychiatric disorders. And, an additional 700,000 men were discharged from the Armed Forces because of such disorders.

The National Mental Health Act which authorized \$7,500,000 for setting up a national research center with a National Advisory Council, was signed by President Harry S. Truman on July 3, 1946. It had one defect in common with several other historic laws—it was voted without an appropriation at the very end of a session.

Surgeon General Parran immediately did all that he could—he appointed the National Advisory Council. It was Dr. Robert H. Felix, the chief promoter of the law, who made the rounds of the foundations and found a small one—soon to go out of business—the Greenwood Foundation—with faith enough in its objectives to put up the \$15,000 necessary for the Council to hold a meeting.

The absence of an immediate appropriation did not detract from the triumphal tone of Surgeon General Parran on the mental health bill in his *Annual Report* of October 1, 1946.

"The National Advisory Mental Health Council has been appointed and has met to lay the groundwork for the program which will be ready to operate as soon as funds are appropriated," he said.

It may be well to note here that Congress started appropriating for mental health research the next year—and that by 1960 the annual appropriation was more than \$100,000,000 a year.

Since the law did not specifically say this research was to have a building of its own, there was controversy for a couple of years over whether or not a building should be constructed. This was not done. The National Institute of Mental Health was formally set up on April 15, 1949, with Dr. Robert H. Felix as its Director, in the temporary building which Dr. Parran had erected as his World War II headquarters on the Bethesda acres.

The third spectacular advance in public health during the year 1946 was the drafting of the Constitution of the World Health Organization at the International Health Conference held in New York June 19 to July 22. Surgeon General Thomas Parran of the United States Public Health Service was Chairman of that Conference. The WHO would come into being when that Constitution was ratified by 26 of the United Nations.

"I am the father, grandfather, and primary sponsor of WHO. I don't know of anybody who can challenge that statement," Dr. Parran said to

the author of this book in an interview at his home in Pittsburgh, Pennsylvania, in March of 1965.

Dr. Louis L. Williams, Jr., who had been called in to help Dr. Parran on this project, gave the details of how the WHO was formulated. Dr. Williams was still convalescing from his heart attack in North Africa when Dr. Parran assigned him to the Department of State to help work out a model constitution for a new international world health agency.

"Dr. Parran told me that the tempo of the State Department would be so much slower than that at the Public Health Service that I would have a chance to recuperate," said Dr. Williams. "As a matter of fact, I was never so busy in my life.

"Everybody there was in a frenzy of activity. One of the projects in progress was helping Liberia set up a public health service. I was given confidential files going back to the day in 1938 when Franklin D. Roosevelt saw the possibility that the League of Nations would go out of existence as a result of World War II. A task force was set up on this expected wreckage, including a sizeable task force on health. Two of the principal suggestions were a new health set-up in the United Nations and a separate health set-up under the umbrella of the United Nations."

On October 11 and 12, 1945, the State Department convened an Advisory Health Group which strongly urged early establishment of an international health organization. The Senate on December 20, 1945, unanimously adopted a resolution requesting the President to urge upon the United Nations the prompt convening of an international health conference and the formation of an international health organization. Dr. Thomas Parran was appointed by the Economic and Social Council of the United Nations to the Technical Preparatory Committee for the proposed health conference. The meeting of the Technical Committee was set for April 5, 1946, in Paris.

Most of the work of Dr. Louis L. Williams, Jr., and three aides in the State Department was in preparation for Dr. Parran's work as a member of the Technical Preparatory Committee. These aides were: Dr. James A. Doull, a specialist in international health, Mr. Howard B. Calderwood, a political economist who had a genius for international organization, and Dr. Henry van Zile Hyde, a young man with United Nations Relief and Rehabilitation Administration (UNRRA) field experience.

"We drafted up our notion of a World Health Organization down to the last details," said Dr. Williams. "We modeled it on the Public Health Service which then had as sub-divisions District Offices, now called Regional Offices, each in charge of a geographical block of States.

"For WHO, the central office, placed in Geneva, Switzerland, would be in charge of the world service. It would be subdivided into regional offices, each in charge of servicing a geographical block of nations. Each of the individual nations could join whether or not that nation belonged to the United Nations."

Dr. Williams said that Surgeon General Parran pointed out that diseases such as yellow fever, malaria, and plague could not be contained by geographical lines, and often were too widespread to be fought by nations working alone.

The title "Regional Offices" was accordingly included in "The Proposals for the Establishment of an International Health Organization" which was submitted by Dr. Parran to the Technical Preparatory Committee meeting in Paris.

This title consisted of two sentences: "The Governing Body would have the power to authorize the establishment and development of regional offices, delegating to them such authority or securing from them such services as it may deem desirable. The Governing Body should give every consideration to entering into arrangements with regional organizations for the performance of the functions of such regional offices."

"Dr. Parran did not present his plan to the Technical Preparatory Committee until after he had asked all of its members to make written notes as to what they thought should be included in the Constitution," said Dr. Williams. "However, when the Committee got down to actual drafting, with Howard B. Calderwood serving as chairman, Dr. Parran appeared with plenty of mimeographed copies of all his proposals for the use of all of the delegates. Only three or four small areas were added to his draft."

Dr. Parran appeared at the New York conference to draft the WHO Constitution with quite a demonstration of harmony on the home front. He had as a fellow delegate Dr. Martha M. Eliot, Associate Chief of the Children's Bureau with which the Public Health Service had traditionally differed. To show his recognition of the work of nurses, he took in as a technical expert on nursing Mrs. Elmora B. Wickenden, executive secretary of the National Nursing Council.

However, Dr. Parran, elected President of the Conference by the sixty-one nations attending, found that it was impossible to arrange in advance an atmosphere of American amity. His proposal for regional offices was the subject of serious controversy, at times fought out behind closed doors. At issue was the Pan American Sanitary Bureau, which Dr. Parran envisaged as a regional office for the American republics, with a former Surgeon General of the Public Health Service, Dr. Hugh S. Cumming, as its Director.

Dr. Parran definitely envisaged a World Health Organization which would absorb the Office International d'Hygiene Publique, on which Dr. Cumming always had been the United States representative; the functions of the health divisions of the United Nations Relief and Rehabilitation Administration; and, as a regional office, the Pan American Sanitary Bureau.

Dr. Cumming rallied all his international friends, and particularly



the Latin-American nations, in an effort to keep the PASB an autonomous agency. He almost succeeded.

Said Dr. Williams: "Dr. Cumming got a provision adopted whereby, by charter, PASB could choose its own Director. Dr. Parran called together the General Committee and told them they were making a mistake—that no regional office could be different from the others. And one night he had the representatives of all the Latin American countries together for supper. The result was that these countries agreed that a committee on what to do with PASB would have to be set up.

"This Committee appropriately was titled 'A Unification Committee.' It drafted the solution which now stands as Article 54 in the WHO Constitution."

Article 54 reads: "The Pan American sanitary organization represented by the Pan American Sanitary Bureau and the Pan American Sanitary Conferences, and all the other inter-governmental regional health organizations in existence prior to the date of signature of this Constitution, shall in due course be integrated with the Organization. This integration shall be effected as soon as practicable through common action based on mutual consent of the competent authorities expressed through the organizations concerned."

Dr. Williams then told how integration actually was worked out through Dr. Parran's preliminary preparation for the Pan American Sanitary Conference held in Caracas, Venezuela, the next January—a meeting which Dr. Williams attended as a United States delegate.

"For years the Pan American Sanitary Bureau had operated on a limited budget," Dr. Williams explained. "Dr. Cumming received no salary as Director. He accepted only a car and chauffeur in Washington and travelling expenses on the trips that he took. When a major health problem came up in the Americas, money was channeled by the Rockefeller Foundation or the U.S. Government to PASB to finance the assistance needed. Dr. Parran planned for a far larger and more important health service than this, and decided that the best way to bring it about would be to confer with officials of the Rockefeller Foundation.

"He succeeded in getting a promise that Dr. Fred L. Soper, Associate Director of the International Health Division of the Rockefeller Foundation, would serve as Director of the Pan American Sanitary Bureau, if elected.

"When we met in Caracas, all plans worked out smoothly. Dr. Cumming was elected Director Emeritus. Dr. Soper was elected Director. The Venezuelan Government announced a decoration for Dr. Cumming, who made a speech congratulating the countries on securing a Director as competent as Dr. Soper."

Dr. Soper said this account was somewhat oversimplified, and that, as it actually turned out, some of the Latin American countries did not accept the word "integration" as meaning the disappearance of the Pan

American Health Organization in WHO.

"Dr. Parran, who had been for many years on the Board of Scientific Directors of the International Health Division of the Rockefeller Foundation, did confer with Dr. George K. Strode, its Director, and got his promise to assign me to serve as Director of the Pan American Sanitary Bureau if elected," he said. "However, Dr. Cumming had rallied his international friends by calling a special meeting in Havana, Cuba, in the fall of 1946 in an attempt to maintain the Pan American Sanitary Bureau as an autonomous agency. That meeting voted a sort of 'declaration of independence.'"

Dr. Soper then defined the present status of PAHO resulting from a series of international moves.

"The Pan American Health Organization exists as an international agency created by the Pan American Sanitary Conference under the terms of the Pan American Sanitary Code (1924). The PAHO Constitution provides for the supreme governing body to be the Pan American Sanitary Conference and the administrative agency the Pan American Sanitary Bureau. The PAHO is recognized as a specialized organization of the Organization of American States, and also as the regional organization of the World Health Organization," he said.

"The handsome new building on Virginia Avenue and Twenty-third Street, N.W., Washington, D.C., is the property of the Pan American Health Organization. This might have been much more difficult to finance had it been established as a regional office of the World Health Organization."

Other notable events in the Public Health Service crowded the year 1946. On July 16, the Vital Statistics Division was transferred from the Bureau of the Census, Department of Commerce, to the Public Health Service under the President's Reorganization Plan No. 2.

In the year 1946, too, Surgeon General Parran was enabled, by a curious combination of circumstances, to announce a truly new era in the treatment of leprosy. The experiments started by Dr. Guy H. Faget in the year 1941 in the leprosarium at Carville, Louisiana, were showing remarkable results. The *1946 Annual Report* of the Surgeon General stated that thirty-seven patients were discharged from Carville because of arrested disease—a number about twice as large as for several recent years. Dr. Parran hailed this as "the good results of sulfone therapy in leprosy." The patients at Carville had been revitalized with hope.

Stanley Stein, the patient who served as editor for *The Star*, Carville newspaper, organized what he called The United Patients Committee to press for a few civil rights to go along with the improved medical treatment, and for plastic surgery to repair some of the scars of leprosy which he wished to have officially called "Hansen's Disease." The committee of patients drew up a fifteen-point program.

Mr. Stein then had a further inspiration. Watson B. Miller, who had

long served as the legislative representative of the American Legion in Washington, D.C., was now the Administrator of the Federal Security Agency which included the Public Health Service. Mr. Stein got the Carville post of the American Legion to get the Louisiana post of the American Legion to introduce a resolution in behalf of Carville at the national American Legion Convention. It recommended to the Surgeon General of the United States that he appoint an Advisory Committee on Leprosy in the United States. Its purpose would be to study the care, treatment, and rehabilitation of victims of that disease.

This strategy was completely successful. Surgeon General Parran appointed the Advisory Committee on Leprosy in the United States early in 1946.

Remarkably, one of the men he appointed was Dr. George W. McCoy, then dean of the Louisiana State University School of Medicine. His special interest in leprosy dated back to the early 1900's when he had headed and later closed down the United States Leprosy Investigation Station for the study of leprosy on Molokai, Hawaiian Islands. The next year, 1947, Dr. McCoy retired to private life, having given a helpful hand on leprosy up to the time some real help for the disease was found.

Attending the first meeting of the Advisory Committee on Leprosy in the United States, held in May 1946, were Federal Security Administrator Watson B. Miller, Surgeon General Thomas Parran, and two of his Assistant Surgeons General, Dr. Ralph C. Williams, and Dr. Otis L. Anderson.

"That started a period of transition," recalled Stanley Stein. "Dr. Faget, in charge of the Carville Hospital, was not well. We patients were pressing for changes, and were giving him plenty of trouble. It seems ironical now that the very people for whom he had created a new hope should have complicated his life."

That autumn of 1946, chaulmoogra oil therapy was officially abandoned at Carville, and the sulfone drugs were declared "the treatment of choice." Other sulfones had been added to Promin, notably Diasone and Promizole, both taken by mouth.

Dr. Guy H. Faget did not live to savor the acknowledged success of the treatment of leprosy by sulfone drugs which he had pioneered. In the spring of 1947, his health failed so badly he was transferred to the Marine Hospital at New Orleans where his duties would be lighter. On July 17, 1947, he fell from an open window of that hospital and was killed.

Already his success was winning plaudits for the Public Health Service. Dr. Thomas Parran proudly reported to Congress:

"For the first time in the history of leprosy it is now possible to bring hope to its victims. There is now hope, furthermore, that by diagnosis at an early stage and immediate treatment with the sulfones, it will be possible to arrest the disease within a comparatively short time.



"The Carville exhibit of the new sulfone treatment was displayed at the annual meeting of the American Medical Association in June 1947, and was awarded the silver medal for excellence of presentation in the class of original research."

"Dr. Faget made the greatest contribution in this field since Hansen discovered the bacillus," said Stanley Stein. "Since I have lived at Carville we have had two entirely different eras—the chaulmoogra oil era of utter hopelessness—and the sulfone era of hope. The whole place changed, physically and in philosophy. Dr. Faget should have had—still should receive—the Damien-Dutton Award."

In New Orleans, Mrs. Guy Faget, widow of the sulfone pioneer, proudly recalled that her husband was honored at the International Conference on Leprosy held in Brazil in 1946.

As a result of the second meeting of the Surgeon General's Advisory Committee, a liberalized home-leave policy went into effect at Carville, and a New Orleans plastic surgeon, Dr. Waldemar R. Metz, was appointed as consultant. Gradually the rest of the reforms demanded by Stanley Stein "to take us out of the criminal class" went into effect.

Neither Dr. Parran nor Miss Petry worked to have the Cadet Nurse Corps program, designed for an emergency in wartime, continued in time of peace. Miss Petry recalled that she had heard Dr. Parran say frequently and with pride that this was *one* emergency program that was not perpetuated. However, the wartime program had shown the continuing need for the Public Health Service efforts in the field of nursing and nursing education.

During the fiscal year 1946, a new Division of Nursing was set up in the Office of the Surgeon General with Lucile Petry in charge. Its duties were to develop nursing policies for the Service, advise the Surgeon General on nursing problems, give professional supervision to all nurses in the Service, and to administer nurse education functions, including the publication of the *United States Cadet Nurse Corps News* until the last class was graduated.

Two highly significant paragraphs concerning the year 1946 appeared in the *1947 Annual Report* of Surgeon General Parran. They were:

"As a result of the greatly expanded grants-in-aid funds available for cancer research, there was a sizeable increase in applications for such grants; of these 121 were considered and 96 recommended."

And, two sentences further on: "The National Institute of Health received the Lasker Group Award of 1946 in recognition of its fundamental contribution to the prevention and control of disease."

Dr. Parran went on to explain that in the National Cancer Institute three new research units had been established.

The Surgeon General was reporting some of the early results of a new and powerful public force then getting underway—the promotion of Federally-financed medical research by voluntary organizations led by

crusading individuals. The prime movers were a husband-and-wife team of philanthropists, Albert and Mary Lasker.

In his book, *Taken At the Flood—The Story of Albert D. Lasker*, John Gunther told just how this spectacularly successful movement was created. Albert Lasker, the advertising genius who had coined the words “Kotex” and Kleenex” and made them common nouns, met and married a beautiful young woman at about the same time as he decided to leave the advertising business.

Said Gunther, “A few weeks after their first meeting, Lasker asked Mary, ‘What do you want most out of life—what accomplishment?’

“She replied, ‘To push the idea of health insurance because most people can’t afford adequate medical care. And to help promote research in cancer, tuberculosis, and the major diseases.’

“This appealed to Albert strongly. He replied, ‘I’d like to help you, but for that kind of program my money is nothing. No private money, not even Rockefeller money, can be more than a drop in the bucket. You will need *federal* money.’ He added surprisingly, ‘What’s more, I’ll show you how to get it.’”

John Gunther said that Albert Lasker then pointed out that in order to work for really large sums for medical research in the Federal budget, it would first be necessary to understand politics—“that is, to make friends with Senators and Congressmen and learn about the mysterious ways of Washington.”

This the Laskers proceeded to do, eventually becoming the close friends of the important Senators and Representatives to whom they pleaded for health projects through the voices of volunteer agencies and university professors.

Later, as a widow, Mary Lasker became the close friend of a series of Democratic Presidents and their wives.

Mary and Albert Lasker began their crusade with cancer in which both had been specially interested. The Laskers joined, and obtained control, of the American Society for the Control of Cancer, whose name they succeeded in getting shortened to the American Cancer Society.

The Laskers found that this Society raised only about \$350,000 a year, none of it used for research. They offered to supply \$80,000 for a fund to finance a money-raising campaign with the stipulation that one-fourth of the funds raised should go into research. They found out that the word “cancer” was as taboo in print and over radio as the word “syphilis” had been before Dr. Parran changed things.

Eric Johnston agreed to run the cancer campaign. Mary Lasker enlisted the cooperation of the National Broadcasting Company and the Columbia Broadcasting System. The word “cancer” was put on the air in 1945 by radio stars Bob Hope and Fibber McGee and Molly. The campaign raised \$4,000,000 in one month which meant that \$1,000,000 was now available for cancer research—almost doubling the total amount

then being spent for that purpose in a single year in the United States.

Albert Lasker then proposed that the American Cancer Society, with its increased prestige and authority, assist in getting increased funds for use by *Federal* agencies, notably the National Cancer Institute of the Public Health Service.

Said John Gunther, "In the end, representatives of the Society duly went to Washington to testify, and their testimony had a pronounced effect on members of Congress. Figures tell the story. In 1946, the budget of the National Cancer Institute was under \$600,000; by 1950 it had risen to not less than \$18,000,000 partly as a result of testimony by members of the Society, and in fiscal year 1960 reached the spectacular total of \$92,000,000."

The Laskers also set up the Lasker Foundation to provide funds to be used in the conquest of neglected diseases, and starting in 1946, for an annual award for notable advances in disease-conquest. The first award was the one to the National Institute of Health, and the second went to a medical officer of the Public Health Service, Dr. John F. Mahoney, Director of the Venereal Disease Research Laboratory in the hospital at Staten Island, New York, for his work in discovering and perfecting the penicillin treatment of syphilis.

Many societies were formed to crusade for Federal funds for research into a long list of chronic diseases—among them mental disorders, heart ailments, cerebral palsy, epilepsy, and stroke. Their spokesmen added many pages of testimony in health hearings. The citizens addressed attentive ears of powerful leaders of Congress, high among them at first Senator Claude Pepper, Democrat, of Florida; Representative Frank B. Keefe, Republican, of Wisconsin; and Representative James Percy Priest, Democrat, of Tennessee; and later Senator Lister Hill, Democrat, of Alabama, and Representative John E. Fogarty, Democrat, of Rhode Island.

Early in the year 1947, Oscar R. Ewing succeeded Watson B. Miller as Federal Security Administrator, and Surgeon General Thomas Parran found himself facing a changed situation. In March, the Public Health Service was directed to vacate the building constructed for it at Nineteenth Street and Constitution Avenue, N.W., so that the Atomic Energy Commission could move in. Plans to keep the headquarters together in one of the two buildings being occupied by FSA on Fourth Street at Independence Avenue, N.W., were countermanded. The Surgeon General and his immediate staff were moved into the North Building where the Administrator had his offices. Other portions of the Public Health Service were moved into the South Building, and an overflow went to Suitland, Maryland.

This distribution was symbolic of the determination of Administrator Ewing to bring his enlarging dominion more closely under his own supervision. He was working toward making the Federal Security Agency a



Department with a Cabinet officer at its head. The *1947 Annual Report* of the Public Health Service turned out to be the last annual report that Surgeon General Parran, whose term would expire April 5, 1948, would make.

Word went around Washington that Administrator Ewing and Surgeon General Parran were not seeing eye-to-eye. Many knew that Dr. Parran did not consider that the National Health Assembly which Administrator Ewing was planning for the first week in May 1948 would be well-timed politically. Its purpose would be to accelerate the enactment of the compulsory health insurance bill which was meeting increasing opposition. Long hearings were held on this bill, but it never was voted out for floor action by a committee in either House. Albert Lasker testified for it in a Senate hearing. Dr. Parran consistently favored the legislation, but clearly saw that favorable action was not then to be expected. Despite the differences of opinion between the Administrator and the Surgeon General, few indeed foretold that Dr. Parran would not be reappointed.

Dr. Parran's own penchant for thorough planning ahead paved the way for a smooth transition to a new Surgeon General. On April 29, 1947, Surgeon General Parran had appointed, with the approval of NIH Director Rolla Eugene Dyer, three imaginative young public health officers to serve as a planning and reorganization committee for the National Institute of Health—Dr. Leonard A. Scheele, Dr. Norman Topping, and Engineer Mark D. Hollis. They met nights to carry out their mandate from Dr. Parran—to think ten years ahead and produce both the physical and governmental reorganization plans for the National Institute of Health. They were called "Committee on Organizational Framework, National Institute of Health."

Thinking ahead involved plans for new research Institutes. There were also plans for clinics with hospital beds to serve the researchers. It was obvious that to set up such a system, land adjacent to the National Institute of Health would have to be acquired.

At his desk as President of the University of Southern California Dr. Norman Topping years later told part of the land acquisition story. Dr. Topping was the active researcher among the three planners. During the War, he had been sent to the Connaught Laboratories in Toronto, Canada, to get tips on typhus vaccine. He had returned to head the important studies on the vaccine at St. Elizabeths Hospital, in Washington, D.C. When the War was over, he went out to NIH and wrote the bulletin on typhus vaccine. He knew the NIH grounds well.

"There was a Jewish-owned golf course on the Wisconsin Avenue side," said Dr. Topping. "A cloistered Catholic convent occupied, and still occupies, a walled-in property on the Old Georgetown Road border. We were unable to buy the convent itself, but secured some of its acreage. And high on the hilltop of the inner grounds was Stone House, belonging

to the Reverend G. Freeland Peter, a retired Canon of the Episcopal Cathedral.

"Representative Sol Bloom, of New York, was president of the golf club, and soon convinced the members not to stand in the way of a major research center of the Nation. The club moved out and built a new clubhouse and golf course. But the Episcopal canon held everything up for weeks. When he finally was ready to sell, we even agreed to move his boxwood to the garden of the place he bought in Virginia."

At the cloistered convent of the Sisters of the Visitation, the Mother Superior well remembered the details of the business deal whereby that Order of the Catholic Church sold the fifty acres of their property devoted to dairying to the National Institute of Health, and were permitted to hold the convent itself and the eleven acres which constitute its grounds. She said she had known at the time that NIH wished to buy the entire property, and that the Federal Government could have taken it through a condemnation process.

"Our lawyer begged off for us, and I hope that the Government never will want it," she said. "It would be impossible to build a convent as sturdy and beautiful now. We have a cloister the length of two wings, made by early artisans who now are dead and none are trained like them anymore." When the Visitation Sisters of Washington and Bethesda celebrated their 100th anniversary in 1950, the sale of the fifty acres to the Government was mentioned in the historic sermon.

While the three planners chosen by Surgeon General Parran were negotiating the real estate transactions which made possible more buildings at the National Institute of Health, Dr. Parran took a decisively constructive hand in the planning. In the summer of 1947, he called Dr. Jack Masur to Washington from his position of hospital consultant to the Federation of Jewish Philanthropies of Greater New York to ask him to take over the planning of a large clinical center for the National Institute of Health.

"My appointment was with Dr. Parran," said Dr. Masur. "At that time, Dr. Scheele was planning a clinical center for cancer alone, and Dr. Felix was planning a clinical center for mental illness alone. Dr. Parran said he knew that other Institutes would be started and would gain clinical centers with the result that there would be many hundreds of beds. Dr. Parran asked me how many beds could logically be managed in a clinical center. I answered, 'five hundred.' And the matter was decided that way in a single conversation of less than five minutes."

The three planners started looking for a plot on the NIH grounds large enough for a Clinical Center of five hundred beds. It would serve as a symbol of the change in emphasis on medical research in public health from the communicable diseases, which were being controlled, to the chronic diseases of mankind, particularly cancer, mental illnesses, and heart diseases.

As Director of the National Cancer Institute, Dr. Leonard Scheele was now in a strategic position. Into that trailblazing Institute, Congress, prodded by Albert and Mary Lasker, was channeling large appropriations.

The end of the Clinical Center story was given by Mark D. Hollis, now Chief Engineer of the Pan American Health Organization/World Health Organization.

"The three of us were intent on working out recommendations for a change—a major change, at the National Institute of Health," he said. "We soon ran into nothing more than we had expected—resistance to any change that had the appearance in any way of controlled research.

"We were under orders, however, to make plans, and we did.

"We developed the general concept of a Clinical Center with the assumption that such a Center ought to have at least as much, or maybe twice as much research space as bed space. The cost estimate we had in mind was around fifty million dollars.

"Together we arranged to present our final report at an open meeting to be held in Top Cottage at NIH on a Friday night in the spring of 1948. It was billed to be a frank and open debate—and we knew it would be.

"We prepared to meet what we knew would be a hostile group. We decided that Dr. Scheele would speak first. He would cover the changing, transitional character of health in the United States—from the old era of fighting communicable diseases to the new one stressing chronic diseases—as a foundation, and would set up the conditions on which the committee had done its work.

"Dr. Topping would follow as the more or less established researcher and would report on the reasons for the changing research pattern and the efforts to mobilize a research movement in certain directions. This would be reflected in the division of space in the Clinical Center.

"I was to follow with the simplest of the three tasks, which was to review a little of the background history of the National Institute of Health and to talk about the executive administration on problems of research.

"At 4 p.m. that Friday I had a telephone call from Surgeon General Parran that Dr. Scheele would be the next Surgeon General and that it would be announced by President Truman on Monday. Earlier that day, Dr. Scheele had left word for me to call him, so I knew that he knew it. We both entered that meeting knowing that our audience did not know of the coming change, and that neither of us could tell them.

"Dr. Scheele's speech was rough going. It brought a barrage of hostile questions. A brief recess for refreshments was held before Topping's speech.

"During that recess a telephone call came in, giving to the person called to the telephone the news that Scheele would be the next Surgeon General. By the time the meeting was reconvened, the news had gone through the whole audience.

"The rest of the discussion became minor. There was not much questioning. I could not help but wonder what would have been the fight, and



how bitter it might have gotten, had that transition not been made. At any rate, Dr. Scheele came in a Surgeon General precisely at that stage."

Two more medical careers, both brilliant, lay ahead for Dr. Thomas Parran. He established and was Dean of the Graduate School of Public Health, University of Pittsburgh, from 1948 to 1958. He then served as President and Trustee for the Avalon Foundation, third largest in the country. In addition, he undertook important international missions for the Federal Government.

## ACKNOWLEDGEMENTS

The persons who contributed to this book literally range from the First Lady in the White House to the man on the parking lot.

Both Mrs. John F. Kennedy and Mrs. Lyndon B. Johnson and their press secretaries Pamela Turnure and Elizabeth Carpenter gave pictures and facts.

During the last crowded month of composition, so many precious half-hours would have been lost looking for a parking space close to the National Library of Medicine that the deadline would not have been met—except for a brief special arrangement with NLM which required the daily vigilance and cooperation of the parking lot guards.

In between these services beyond the call of duty, the contributions to this book mounted into the hundreds. Many of the donors are mentioned in the text. To all, named and unnamed, goes deepest appreciation.

The most constant contributor was the author's consultant, Dr. Ralph C. Williams.

Former Surgeon General Luther L. Terry, who employed the author, arranged a study-room at the National Library of Medicine, and advised on the entire text, gets a special thank you. His predecessors, Surgeons General Thomas Parran, Leonard A. Scheele, and Leroy E. Burney contributed conferences and suggestions by letter. His successor, Surgeon General William H. Stewart, was very helpful. And Ambassador Hugh S. Cumming, Jr., lent the unpublished autobiography of his father, Surgeon General Hugh S. Cumming.

Credit goes to Elizabeth Pritchard, speech writer for many Surgeons General, and Public Health Service historian, with whom the author talked many times on historical points. Mrs. Pritchard's conviction that the first Surgeon General, Dr. John M. Woodworth, committed suicide prompted a far more thorough research on that subject. The author did not reach the same conclusion. After Mrs. Pritchard died, the author was granted the use of her historic papers which will remain at the National Library of Medicine.

Charles Felton also comes to mind. He was secretary to all the Surgeons General from Wyman to Cumming. His descriptions made them all seem very much alive and very human. He said that Surgeon General Blue, who was a close friend of President Woodrow Wilson's secretary, Joseph Tumulty, came in one day and said: "Well, I can't get it, but I can name my successor." Surgeon General Blue may have believed that it was he who actually chose Hugh S. Cumming. However, many other influences were at work.

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Josephine Roche gave details of New Deal contributions to public health. Lucile Petry Leone called attention to the many advances in nursing.

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A file of copies of the actual material from major references as well as documents, reports, unpublished theses, interview notes, newspaper clippings, speeches, etc., and supplementary source is kept at the National Library of Medicine, Bethesda, Maryland. A file of sources exists for each chapter, and a guide for locating major sources with page numbers, is on file with the source material.

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## EDITOR'S CLOSING NOTE

Mrs. Armstrong's account of Public Health Service history ends with the administration of Dr. Thomas Parran, although her manuscript extends for a period of another two decades and covers the administrations of Dr. Leonard Scheele (1948-1956), Dr. Leroy Burney (1956-1961), Dr. Luther Terry (1961-1965), and Dr. William Stewart (1965-1969). Each of these men is still alive and pursuing a new and different medical career. Perhaps at a later date another writer will appear to examine closely the events which deal with the health affairs covered by this later period as well as those which arise subsequently.

No single person can be expected to undertake the chronicling of so vast an array of complex programs over so long a period of time without errors of omission or commission. I am quite certain that any such mistakes which the reader may uncover occur as a result of faulty memory on the part of those who were interviewed or those who wrote the background documents from which this history is derived.

This account reveals that the American public can be pleased with its investments of funds and support of the Public Health Service, and the Service can be proud of its accomplishments.





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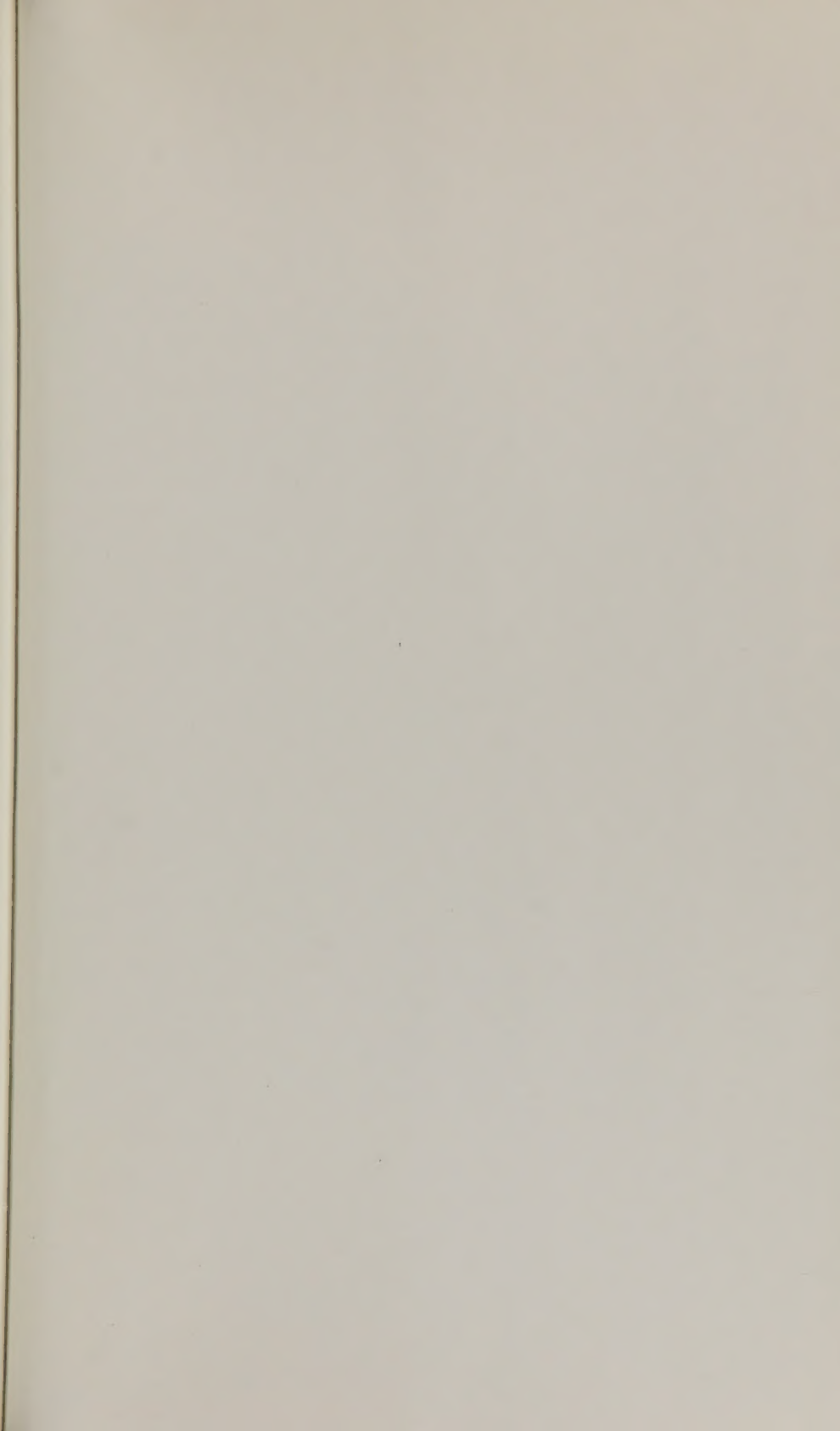
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